# Metalsmith

fall/81 volume one, number four

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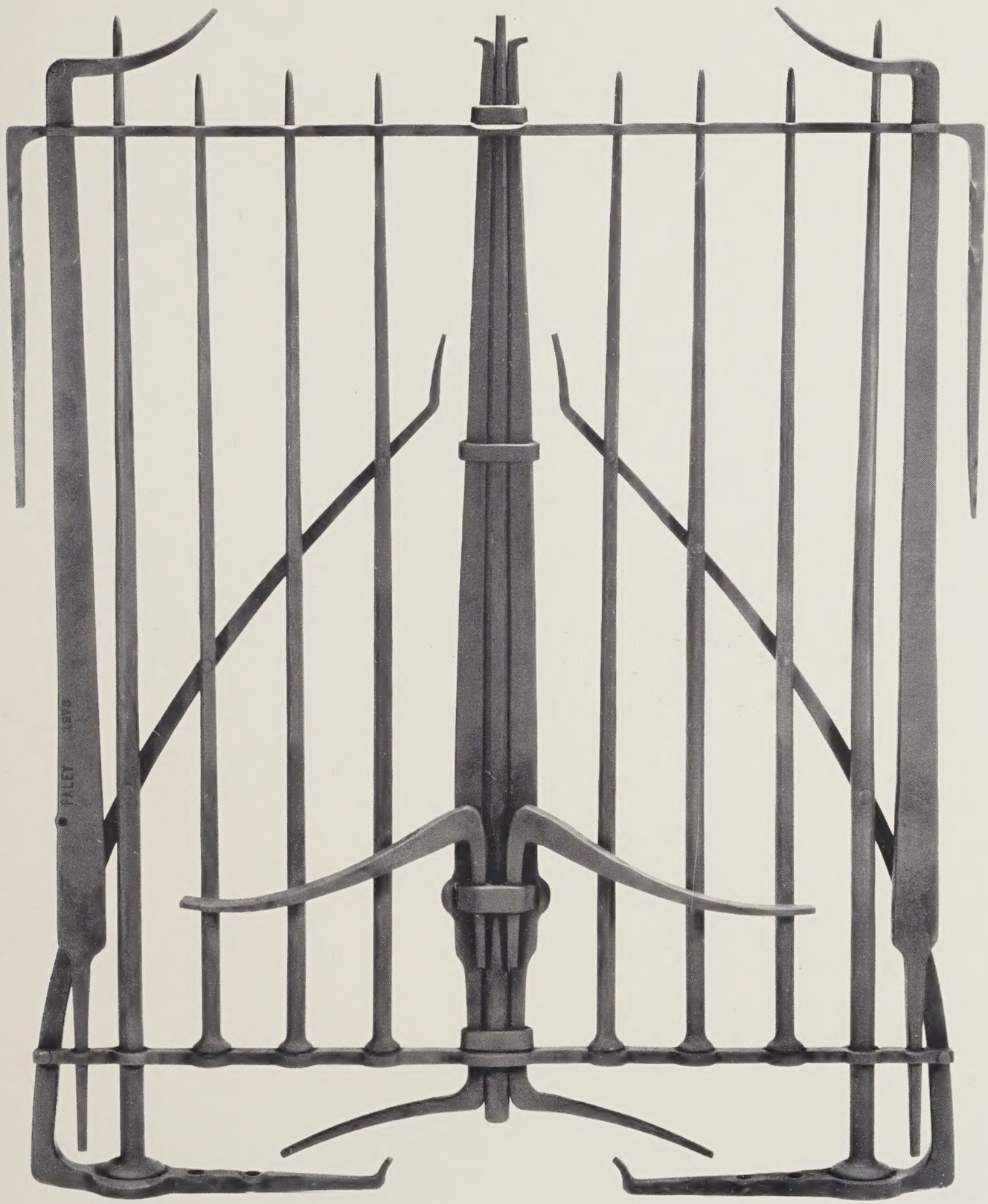
Ornamental Lathes
The Knife, Fork & Spoon
Optical Qualities of Gemstones
The Metalwork of Albert Paley



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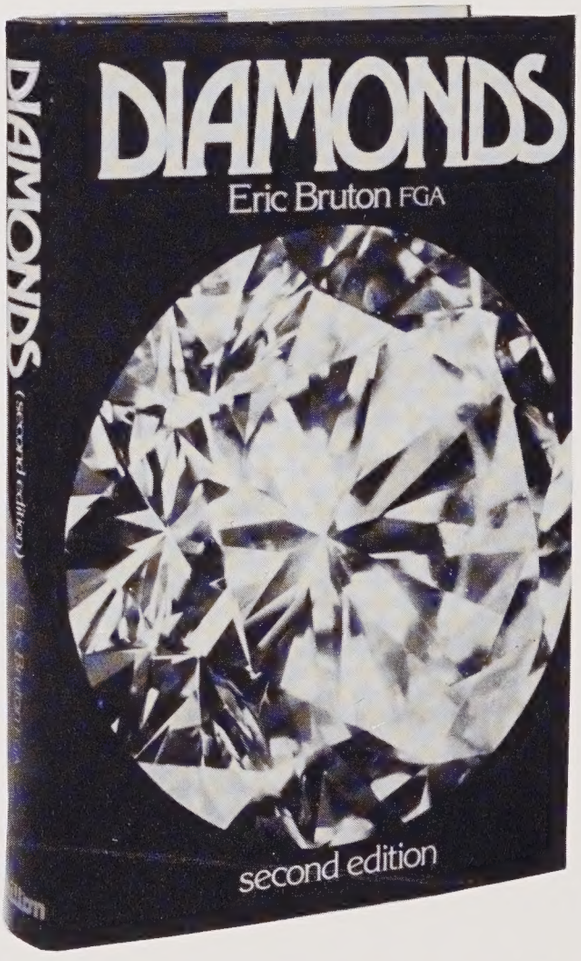


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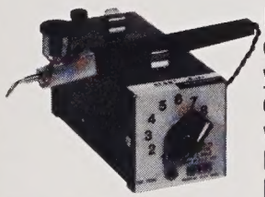

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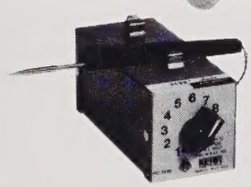

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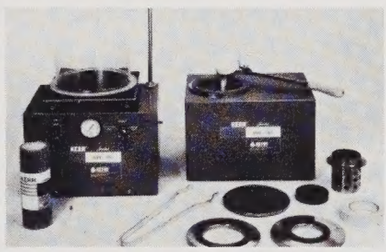

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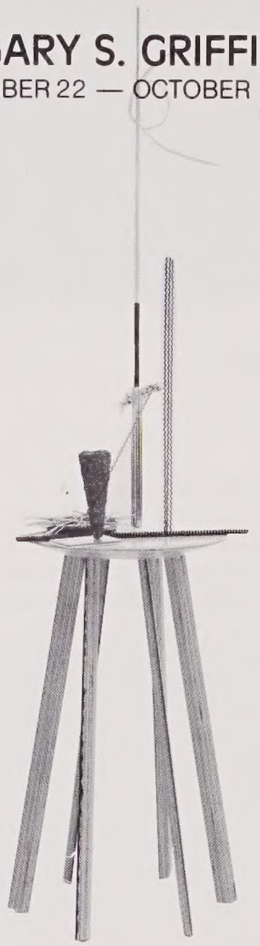

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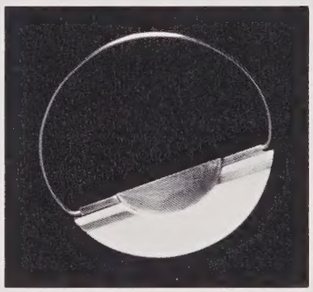

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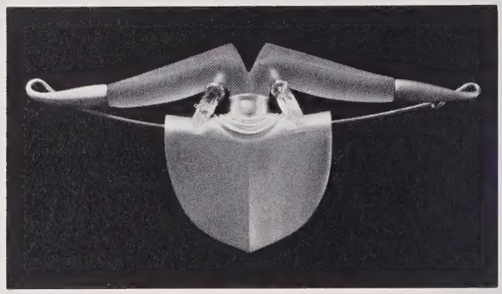

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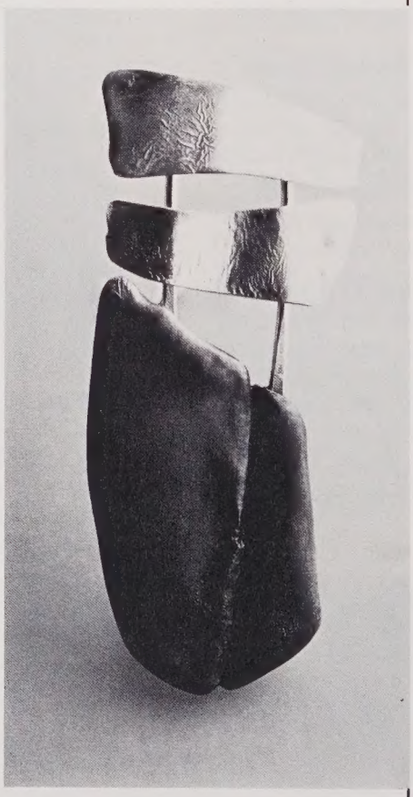

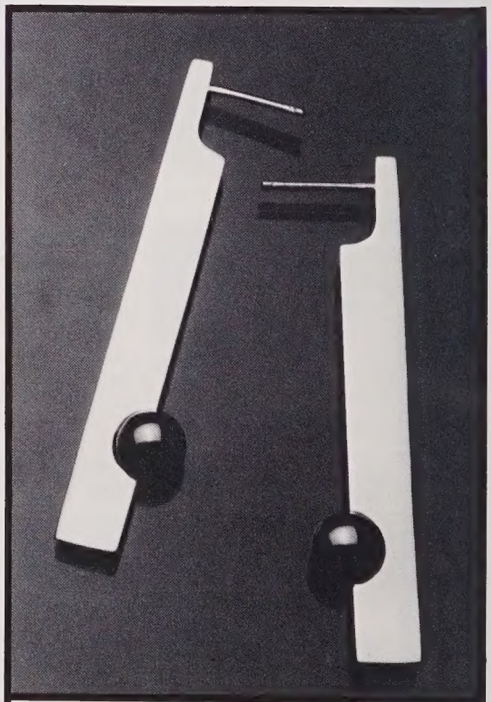

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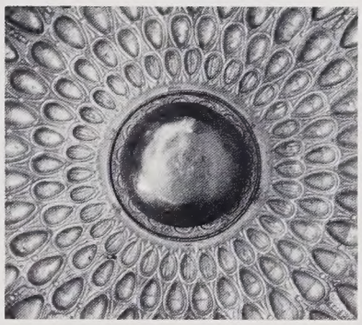

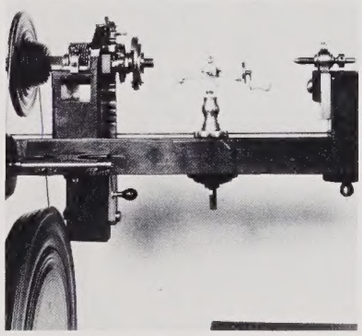

**Cover:** Albert Paley, *Security Screens.* Forged and fabricated mild steel, 6x4½', 1979. Twelve of these screens are installed at ground level as window guards, Civic Art Commission, Louis Sauer Associates, Philadelphia, PA

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I am a firm believer that people generally receive exactly what they deserve, although justice comes with many faces and can take many years. Sometimes it is external and sometimes it comes from within. In my previous editorial, Winter/80, I questioned why crafts are considered "second class"; I criticized the established art museums and critics. There I acknowledged that some of the problem may rest with us craftsmen. I would now like to expand upon that. Perhaps we should examine inward first.

Looking inward involves objectively analyzing our own work. As William Harper states elsewhere in this issue, creativity and originality are extremely important. No question. And I concur with his concern about when the "German Connection" will end. The similarities between some current American work and work done in Germany almost a decade ago are astounding, and unsettling. I am also concerned that our university system and the quest for the almighty grade may foster imitation of instructors' styles. Perhaps an ungraded situation would best encourage esthetic exploration, thus leading to true creativity, originality and development of a personal style.

There are several other problems that I believe exist. First, in too many designs the elements are not integrated —perhaps a mounting or finding has not been incorporated into the whole or the end of a form simply terminates for no reason. This type of inconsistency is disturbing and detracts from the total piece. Second, too much work has no interesting form or shape. Hold the piece up to a strong light, thus rendering it in silhouette, and see if the outside shape is complex or if it is just round or square. Third, too much work has no depth. Those that work with sheet metal and wire often leave the metal in flat sheets and unworked wire. That doesn't mean that all sheet and wire work is dull, but it could probably be made more vital with curved lines substituted for straight lines or nonparallel rather than parallel lines, and so on. The list of design considerations is extensive and space here at a premium, but I trust you get the idea. Someone once told me that rivets can be beautiful—maybe, but then are electrical wires and plumbing pipes beautiful also? Personally, I feel all elements should flow into the design, not stand out as an announcement of their role.

Another consideration is the use of materials. Even though we live in the age of plastics, it is hard for us to be taken seriously when we use plastic in our work. This does not necessarily imply that plastic is bad and should not be used, but it does pose problems: it is not strong, it does break, it scratches easily and its image is cheap. While this does not mean serious work cannot incorporate plastic, plastic rarely adds positively to a piece. And try to sell a $500 piece of plastic jewelry.

Since Lynda and I are now "gallery owners," we have become acutely aware of another major problem: much of American art jewelry is just too large and nonfunctional. We can easily step into our ivory towers and raise the banner claiming artistic integrity and freedom, and the general public will continue to buy their jewelry from Avon and Sarah Coventry. Or, we can become more realistic and scale down the jewelry to a size deemed reasonable by Mary Q. Public. Perhaps as Americans we have a natural tendency to think that bigger is better. If you feel up to a challenge, make your next piece entirely from gold and see how the cost of the material determines the size. I guarantee you will end up with a much better piece esthetically (and undoubtedly one that is more salable).

One additional contention, we prided ourselves on the recent SNAG exhibition that traveled around Europe, thinking how fortunate the exposure was for both us and them. In fact, the work was poorly received in Europe for the preceding reasons and may actually have done a disservice to our image. Reread Oppi Untracht's review of this exhibition in the Fall/80 issue of *Metalsmith* and/or talk to some Europeans. Remember, by definition, jewelry is adornment, to be worn.

In conclusion, the second-class status held by crafts will be perpetuated as long as we accept it. In a recent lecture in Richmond Michael Scott addressed this issue. He emphasized the need for awareness of the image we now project and discussed how to control and promote the image we desire. If we are to forge ahead, we must go through the painful process of self-evaluation, for it is a forerunner of change and growth. As Oppi Untracht succinctly states, "Only when we are sure of our own identity can we project this image clearly to others."

*—MB*

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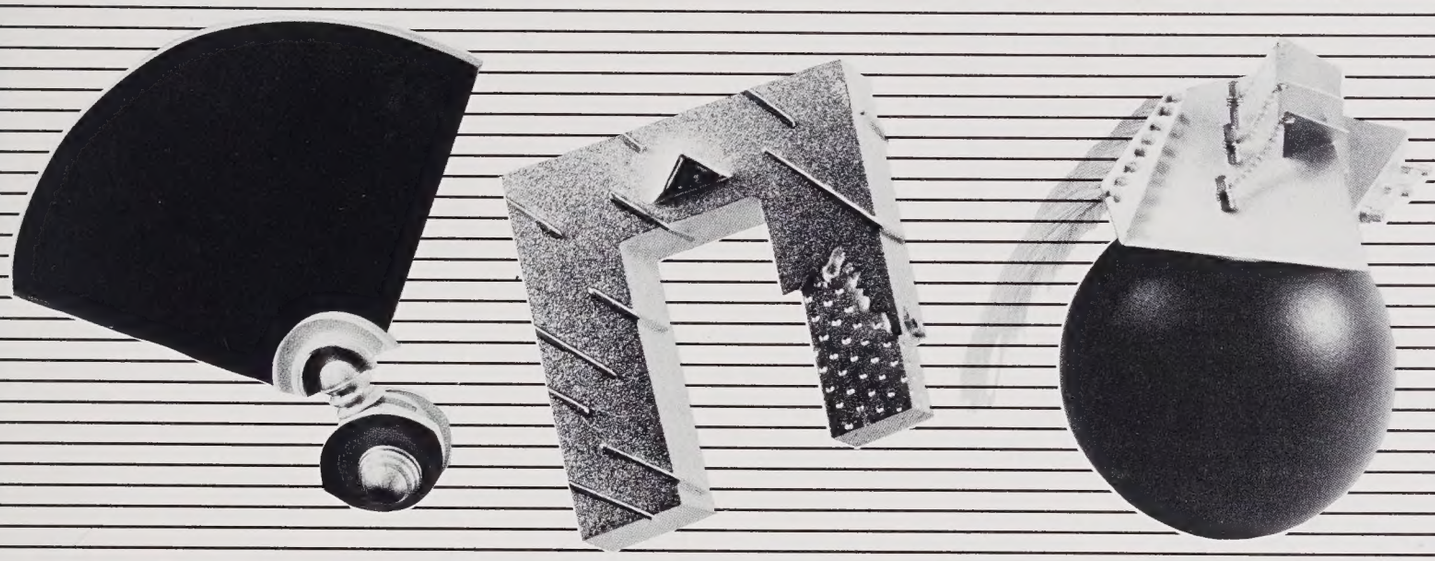

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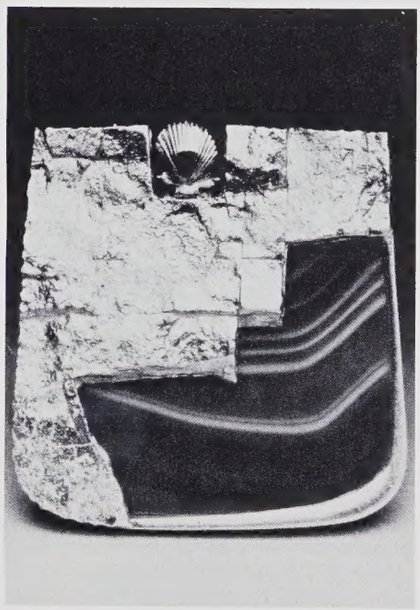

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Dear Editor:
Congratulations on a provocative and handsomely designed publication! The first two issues of *Metalsmith* suggest that it will be an exciting and valuable contribution to the current art/craft literature.

I would like to commend your inclusion of Bruce Metcalf's "Crafts: Second Class Citizens?" in Volume 1, Number 1. Before I address his content, I would like to urge you to offer such articles in every issue. By "such articles," I simply mean those which offer your readership an opportunity to regard crafts within an intellectual and/or philosophical framework. I believe the anti-intellectualism among artist/craftsmen, referred to by Mr. Metcalf, has more to do with an overwhelming dearth of published material of this type (a point he does make) than with an inherent lack of inclination. A regular article of this nature, perhaps even an expansion of it into an ongoing dialogue between writers and readers, could be a thought-provoking catalyst for many.

As to the article itself, I appreciate the attempted structure of Mr. Metcalf's argument and agree with his closing point—that it is the responsibility of the artist/craftsman to communicate with the public and explode the myths about art created in craft media. Yet, there remains something contradictory in his contentions that: (1) craftsmen are basically anti-intellectual, and (2) that it is their responsibility to prove their seriousness to the rest of the world.

It is contradictory because the individual who only "makes art," but does not really think about art—and that means, thinking about one's own ideas, motivations, sources of inspiration and place in a sociological, philosophical and esthetic context, will never be able to communicate!

To think about art, and one's own creation within an art context, one must be educated about art. And here, I suspect, is the heart of the problem. Several of the "weaknesses" of crafts, identified by critics (as cited by Metcalf) may be directly attributable to an educational gap on the part of artist/craftsmen.

Indeed, there is a paucity of critical literature on crafts. When the Renaissance guild system divided artist and artisan, the second-class craftsman was expected to be uneducated. His role was to do, not to think. But 20th-century craftsmen should not have accepted this historical burden. It should have been he who emerged to begin to rectify this situation. There is long historical precedent in fine art literature for the ARTIST/historian and ARTIST/critic, beginning with Vasari in 1550. The craftsman, however, has been all too often unprepared to shoulder such responsibility, for he has lacked the art historical knowledge which is the basis for intelligent critical thinking and writing.

The "weakness" of the "five year lag syndrome" between art and craft is also somewhat attributable to an absence of art and esthetic understanding. Large numbers of craftsmen generally ignore the contemporary art scene. Admittedly, there is a vicious cycle at work here. Many ignore it, because it ignores them. So that when a trend emerges five years later in the craft world, of course it looks stale. It is stale! Art has always had (and needed) the license to draw upon its own history, but history has never been defined in this context by a five-year perspective.

The "lack of an intellectual approach," another "weakness" Metcalf refers to, is of course, a generalization on the part of critics and historians. But again, the vicious cycle intrudes. The lack of artist/craftsmen participation in contemporary movements is often a function of his not being sanctioned by critics and historians to participate. This is due to the prejudices toward craft media, long-held by critics and historians. But what has failed to emerge are eloquent voices, large numbers of voices, to challenge the art establishment in its own press.

The point that emerges, is that to a large extent, the persistence of the idea that craft is a second-class art citizen is very much attributable to the craft establishment itself. This establishment has basically accepted the centuries of prejudice in our society. To a large extent, it believes itself a second-class citizen. It has too often stopped fighting the battle for esthetic legitimacy.

The key to the battle is knowledge. Craftsmen must embrace all of man's artistic heritage, as the painter and the sculptor have always done. Degree programs must include both historical and contemporary esthetics courses and must demand student facility with the ideas imparted in the classroom. It is at this level that we can give the artist a sense of his own esthetic validity, a sense of confidence that he has roots in man's total esthetic evolution. The confidence inspired by such understanding will give him the power to challenge the old arguments.

As for the rest of Metcalf's article, I frankly think it is most dangerous at this point in time, for anyone to promote a "separate language" or a "separate value system" for evaluating art in craft media. There has been slow but steady progress in recent years toward eliminating the established dichotomies. Suggesting a separate identity today can only impede the progress that has been made.

Those who do follow contemporary movements know that there has been an increasing interest by "fine artists" in the exploration of nontraditional materials. I refer not to the collages of Picasso, the box constructions of Joseph Cornell, the extensive use of fiber by the "fine artist" Robert Rauschenberg or the mixed-media creations of the well-established Lucas Samaras. I refer to younger, emerging artists, or artists who have vastly changed direction in recent years, in the stables of very well-known "fine art" galleries.

The November, 1980 issue of *Arts* magazine, for example, offered among its numerous reviews of recent shows, Judith Shea showing fiber pieces at Willard, Addie Herder showing mixed-media constructions at Davis and Long, John Formicola showing fabric, vinyl and string work at Frank Marino, Lynda Benglis showing cast paper pulp at Paula Cooper. And this is but a small sampling. Note too, that Richard Shaw, Ken Price (ceramics) and Judith Shea were included in the important Whitney Museum Biennial this year. Because of their previous "fine art" context, and the establishment exhibition locations, the work of these artists gains immediate legitimacy and demands serious consideration by the art tastemakers. This situation has done much to alter the old definitions of *art* and *craft*, and much to broaden the vision of the art-involved public.

Equally important for achieving a new respect is the fact that more and more collectors of art are turning to craft galleries for their acquisitions. Aggressive galleries in recent years have launched a quiet but effective campaign to educate the art-buying public about the craft revolution in this country. More and more purchasing funds have been diverted by serious private and institutional collectors for the acquisition of quality art/craft.

Ten years ago, the Whitney Museum would never have entertained the idea of mounting an exhibition of art that happened to be made in clay. But its current schedule includes a show of six ceramists opening in December, 1981. Yes—it is the big names—but it is still a major breakthrough!

Indeed, much of the responsibility for educating the public about the esthetic validity of art/craft, rests with the artist. But the artist must believe it first. I propose that this can be accomplished not by maintaining distinction, and thus isolation, but by establishing an *informed* esthetic dialogue with the rest of the art community. Then, let the most knowledgeable and articulate be our spokesmen, write our histories and critiques. Perhaps then craftsmen can stop fighting for space in shopping mall fairs and uninsured exhibit spaces and take their rightful place in the world of fine art.
*—Vanessa S. Lynn, Director*
*Cooper/Lynn Gallery, NYC*

Dear Editor:
I am generally very pleased with the scope of *Metalsmith*. The wide range of well-written articles will, I believe, appeal to a broad readership and ultimately educate about the exciting and innovative work being produced by today's studio metalsmith.

*Goldsmiths Journal*, less attractive initially, served a vital need—it was a crucial information link between makers on many levels. The articles which filled its pages shared information in an informal way. It was always a part of my studio. I hope that the technical and experimental information will continue to have a place in *Metalsmith*. Those in the past who generously shared their work and those in the future—let's hear from you!
*—Paula Dinneen*

Dear Editor:
Just received my *Metalsmith* number 2 (late, but better than never). This issue is much improved over the first in my view. Number 1 came across as a super-stroking for the metal world's luminaries—they don't need it and I've no use for it. Frankly, I'm not sure metalsmiths need their own version of *People* magazine. I see these "personality" pieces as a complete waste of copy space, but at least you're getting it into reasonable limits.

The technical article on mokume was O.K., but lacking in some key points of information. For instance, how about a line drawing of the alloy pourer; why cotton; are alloy percentages by weight or by volume? Same for "Ivy Ross"—what *is* her philosophy; what processes does she farm out; to whom; how much?

Glad to see you are taking on the issue of arts/industry. I hope you have more articles on people who actually work for a living. Personally, I'd rather see more technical articles and fewer historical articles. These latter, I feel, are more the stuff for *Art in America*, possibly, or one of the antiques journals.
*—Richard Davidson*

Dear Editor:
As a young metalsmith looking for a way to support myself with my jewelry, I was very interested in your articles in the winter issue concerning jewelry designers in industry, and especially the article on Ivy Ross. For the past four years I have been working as Sample Art Coordinator/Designer for a large screen-printed tee-shirt company to support myself. This does not leave me the time I need to pursue

*(continued on page 9)*

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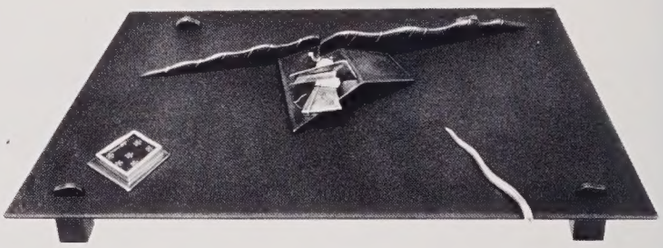

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(continued from page 6)



my craft to the point of making a living at it—I cannot produce enough work to expand my business. Your articles suggested one possible solution to my problem: freelance designing in the jewelry industry.

I would appreciate any information you could give me regarding this area, such as which companies work with freelance designers, their addresses and whom to contact. Thank you.
—*Joann Kershner*

Ivy Ross responds that she advises students and independent jewelers interested in working with industry to look through advertisements in *Jeweler's Circular Keystone*, *National Jeweler* and other trade magazines to find companies that seem to be doing exciting work. Approach them with a letter of introduction about yourself, stating your goals and desire to talk with them further. If anyone else has ideas or information on this subject, please send them to Metalsmith, 35 W 84 St., NY, NY 10024.—Ed.

Dear Editor:
I read with interest the article on Hero Kielman (Winter/81) and I believe that such delineations of a professional career are important to *Metalsmith*. Since the discipline of North American art and craft history has been almost nonexistent, the metalworkers can use help from people with understanding. The magazine is getting off to such a good start and we all have high hopes for its continuing.

I feel sure that you are after that quality of reporting that demands accuracy and that this particular magazine deserves it as well. Because of this I do not hesitate to explain that Mr. Kielman was not a member of any of Handy & Harmans workshops nor were they ever held at the University of Indiana. Moreover, Mr. Kielman would not have been eligible, as the conferences were designed for teachers with little or no metalworking experience.
—*Margret Craver*

Dear Editor:
*Metalsmith* is a very handsome publication, with which I was not familiar, and I am delighted to have two issues to look through. We certainly should subscribe.

We are very interested in crafts and have initiated several exhibitions over the past few years. I am enclosing a copy of the catalog for *Landscape: New Views* (1978), which contains the work of several metalsmiths who might be of interest to you.
—*Thomas W. Leavitt, Director*
*Herbert F. Johnson Museum of Art*
*Cornell University*

Dear Editor:
I was somewhat dismayed to discover on page 66 of the spring/81 issue of *Metalsmith* a reference by Robert Liu to Margaret de Patta and *her lapidary* Francis Sperisen.

Sperisen is one of the few masters in this field and his book, *The Art of the Lapidary,* has become a classic. The forms he developed for de Patta are but a small part of the large array of original designs he developed in the faceting field. Further, the collaboration that took place between the two was made possible in a large part by the remarkable evenness and balance of Sperisen's personality that enabled him to accommodate himself to a wide range of temperaments. In an age of self-importance this talent is even rarer than originality of design.
—*Henry Hunt*

Dear Editor:
I was pleased to see Henry P. Raleigh's article, "What is Craft, What is Art?", in the spring/81 issue. Just when I thought that my reviews were misunderstood and unappreciated by the *Journal* and *Metalsmith* audience, Mr. Raleigh reiterates all my beliefs about what crafts criticism should and should not be. I have always said that if metalsmiths wanted to share the same rung with their painter peers, they would have to accept fair and justified criticism—not just technical discourses. Thank you, Mr. Raleigh!
—*Teresa Callahan*

Dear Editor:
You and Helen Bennett both have my thanks and my congratulations for the fine article ["Irreplaceable Artifacts"] in the spring/81 issue of *Metalsmith*. You did a great job with a difficult subject!
—*Evan Blum*

Dear Editor:
I have had a chance to see the article ["Breaking the Ice with John Marshall"] in the spring/81 issue and was very pleased. I especially would like to say how much I appreciated the layout—well designed.
—*John Marshall*

Your Winter/81 editorial regarding the second-class position of American metalsmithing opens a Pandora's box—so many tantalizing questions raised in one narrow column. Permit me to pursue for a moment the devil's advocacy. American metalsmithing, as Gary Griffin points out in his "Report from Vienna" (*Metalsmith*, Winter/81), is often distinctive, aggressive and sometimes intellectually probing. However, as a "movement," I don't think that this last quality is nearly as prevalent as it should be. Indeed, it is the *most* important element in the hierarchy of criteria that one should consider in evaluating a creative act.

To be more to the point, the matter of one word should be considered—CREATIVE. Many in our field seem to think that the physical act of making something from raw materials constitutes creativity, that the technical ability to impart fine craftsmanship is a creative act. It is not. Creativity is the ability to conceptualize original ideas in a unique manner, allowing the rest of the world to see one individual's personal view, and not just a tired rehash of another's work base.

While some American jewelry and metals are original and exciting, much is blatantly based on plagarism, and we fail to realize it. When, for instance, will our "German Connection" end? If imitation is the sincerest form of flattery, then the leading German jewelers must have highly reinforced egos, for the imitation—even among established members of our society—is rampant. How many more examples of blatant plagarism, lifted from widely distributed German publications, do we need appearing prominently in our own magazine, or naively reviewed as though they deserved such recognition?

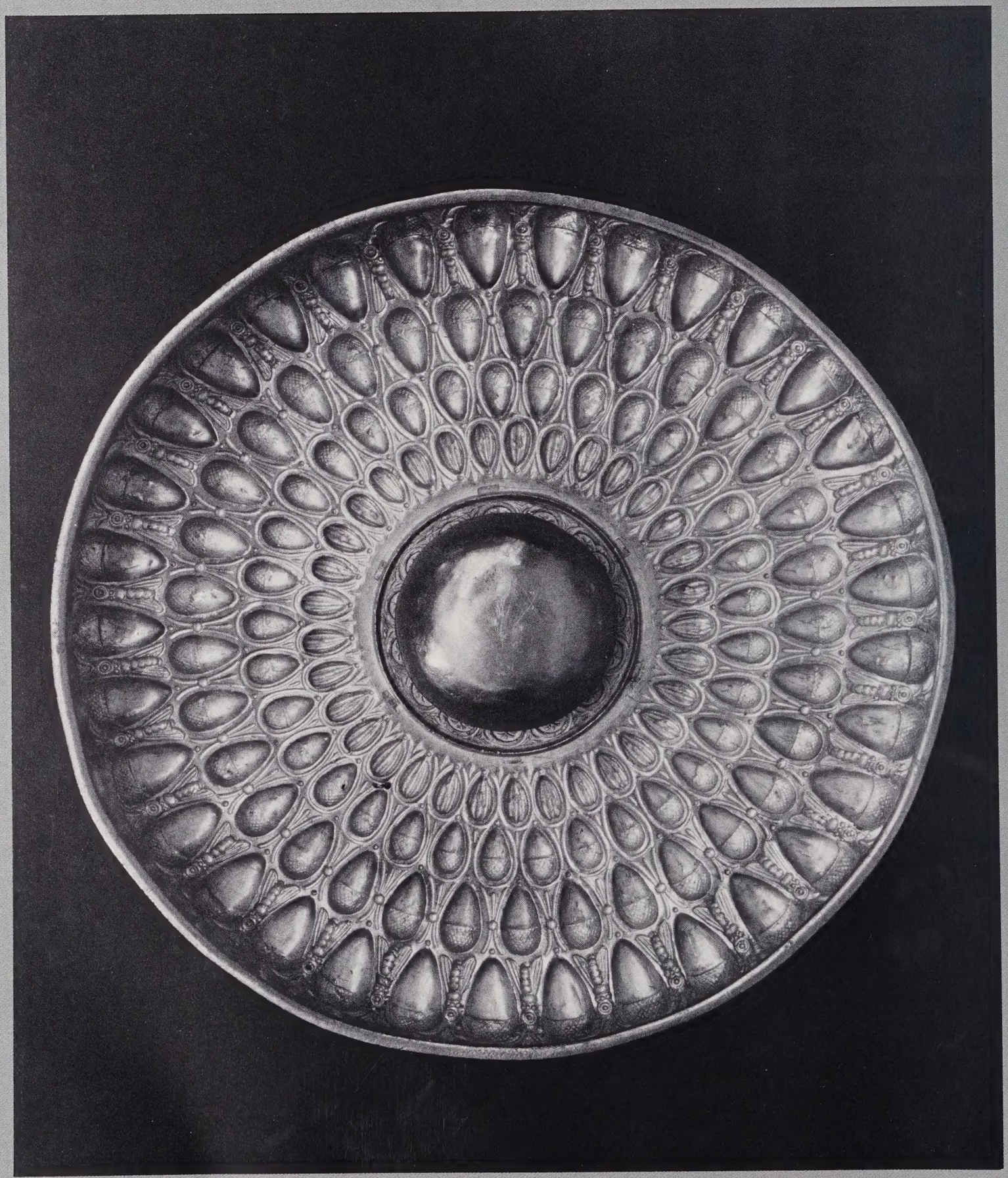
How many university metals departments turn out endless clones of their own institutional styles? This trend has become so embarrasingly prevalent that the recent *Young Americans: Metal* exhibition seemed to force some reviewers (I hesitate to use the term "critic," for there are pitifully few of these in the so-called crafts) to confuse a plethora of pieces from one institution with a movement towards a constructivist conceptual base. Most of these pieces merely reflected the students following the teacher's style. To make matters worse, this particular institution is now perpetrating this attitude into the third generation, as new levels of graduates move out into more and more teaching positions. The basis of the problem, I think, is quite simple: Our field demands a greater mastery of myriad techniques, manipulative disciplines and chemical/physical concerns than virtually any other visual art. However, so many of us get bogged down in the technical arena of forging the perfect taper, electroforming everything and anything, enameling without any sense of draftsmanship or color, mokume-ing, shell-structuring, metal-marrying, etc., etc., etc. And now, titanium! When will the bandwagon syndrome end, this all-absorbing infatuation with knowing how to use all tools and all techniques (without doing anything significant with them, usually) and allow a return to our most basic, more valuable tool—our minds, new ideas?!

Now, do not confuse this with assimilation. Art and the creative process are by necessity a linking of ideas, one to another, to create new forms, to utilize new technology. It is the blending of forms and ideas from the past—both distant and near—to manifest new movements, fresh viewpoints. But understand this and do not confuse it with using another artist's detailing, idiosyncratic techniques, visual configurations, etc.

You ponder when the "big" New York galleries, collectors, critics, curators will pay us more attention. I think it will happen when we cease being so technique conscious for its own sake (and I know that technique is important, but it is only half the process) and look inward to find our *individual* motivations and conceptions—*the more important half*! How well something is made is only important if that something is worth making!
—*William Harper*

# The Phiale
# a Greek Libation Vessel

*by Barbara Young*



The *phiale,* the celebrated libation vessel of the Classical and Hellenistic periods in both the Greek and Persian spheres of influence, has an ancient history. It can be traced back through preceeding centuries in Assyria and Egypt at least to 900 B.C. and it had far older predecessors. Examples of the *phiale* have been in a wide range of materials: gold, silver and bronze, and also—though rarely—in tin or lead and in clay. A few exceptional examples have been found in limestone, steatite, wood and glass.

The importance of the *phiale* in its application as a cultic vessel far exceeded its use as a drinking vessel. It was used in rituals for many different purposes: asking for blessing or good fortune, thanksgiving or fertility and in the celebration of weddings, athletic victories and as a prize for victories of many sorts. Also it could be used in advance of contest, as in bidding farewell to soldiers going to battle. It functioned as a gift of state, a gift within the court, for services rendered and as a vessel to hold the ashes of a cremation burial. The temple inventories of Greece record vast quantities of *phialai* donated to the treasuries there, to be cataloged and stored. On occasion it was used in sacrifices or celebrations along with great mixing bowls supported by tripods, these being also temple offerings. The Temple of Delphi held the goods of numerous city-states in differently allocated spaces within the temple precincts.

Thus the *phiale* was a ritual tool with many nuances of application, used before, during and after major events and on official and public occasions, as well as in private sacrifice.

The *phiale,* along with other forms of plate, attained an importance as a donation item, a votive offering to the gods. Secondarily, it gained an outright economic value functioning virtually as specie. It could be liquidated in time of crisis; the temple treasuries functioned as the reserve bank of modern times. Much of our information about the contents of the temple treasuries and showrooms in which these treasures were displayed has been obtained from the annual inventories. These reports were made by boards of appointed officials; at Athens they were described as "the stewards of the sacred moneys."

Tracing the evolution of the *phiale* provides a useful framework from which to examine the stylistic changes and the ever-enlarging repertoire of metal vessels which developed over these centuries in the Mediterranean world. The *phiale* was produced by all the methods of vessel formation: raising, use of die, casting and spinning. The surface and form, though at first simple, became increasingly complex. Ultimately the *phiale* reached a baroque decorativeness in which it approached the class of show plate (some probably were) before disappearing from view entirely.

---

**Opposite:** Greek Phiale, 3rd century B.C., gold, 9¼" in diameter, acorn motif. Courtesy: The Metropolitan Museum of Art, Rogers Fund, 1962 **Above:** Greek Phiale, 4th century B.C., silver, sun-symbol motif, 6 1/16" in diameter. Courtesy: The Metropolitan Museum of Art, Bequest of Walter C. Baker, 1972

*Temple Treasuries*

Evidence for the custom of dedicating goods and objects at shrines is very ancient and found continually from the archaic Greek period to the Mycenaean age and even into earlier times. The dedication of tithe and first fruits by the country people to their gods is as ancient a custom. Food and drink offerings were given in vessels at tombs from the Mycenaean age forward. However, there is less evidence of the practice of making votive offerings to be kept in a shrine for the purpose of special benefit.

Offerings left in Greek temples by the worshipper covered an extraordinary range of goods, including the tithe paid in kind. They consisted of metal form of considerable value. The lists included statues, vases, tripods, vessels, weapons of every description, jewelry, mirrors, crowns, garments for the statues and a wide range of household items of a practical nature. These were cataloged and sometimes marked for future reference with a number, letter or sign.

At Delos, about 60 different kinds of vessels were recorded, and of the *phialai* at the Temple of Apollo, some examples were described as smooth, fluted, relief, gold inlaid and some were encrusted with gems. Many of the items appropriate for display were set on small pillars or fixed to a slab of stone. The offerings were arranged in the temple precinct itself, in its showrooms or storehouses. In the storehouses they were grouped by kind and hung over doors and windows; some (such as crowns) were hung by string on the walls. When this space was filled, they were stored in boxes or storage chambers. Broken items of metal were seldom repaired but the pieces were gathered together and cast anew with the name of the original donor carved on a stone slab with the new form. When the volume of forms of no intrinsic value, especially those of clay, became burdensome, they were buried in trenches, sorted by kind.

*Origin and Significance of the Phiale*

The pouring of libations was a form of ritual practiced from remote antiquity in both the Mesopotamian and Egyptian worlds, where it formed part of the vegetation cult practices connected with the renewal of the growing season. In the Greek world the pouring of libations, offerings to the chthonic and non-chthonic deities who dwelt in the world below, is demonstrably one of the oldest forms of worship. It was practiced from the Mycenaean to the Classical period without a break. The *phiale* is well documented in the Greek and Roman world, in inscriptions, literary references, temple inventories, wall paintings, vases, relief carvings and sculpture.

The *phiale* can best be considered as a category of vessels which is endowed with cultic significance and put to a wide variety of ritual purposes. The central feature of a rosette, umbo and later the *emblema* insists on a steady focus on the central portion. One or other of these features is invariably present, whether the *phiale* is with or without handles. The size, profile and proportions changed over time, as did the applications and actual manner of use of this vessel. The *phiale* had a prominent place in everyday life and for special celebrations as well, for example, in its use as a funerary urn and in pouring libations in the worship of the dead. Both the Egyptian and Assyrian cultures produced vessels in various metals and in clay, having a lotus motif or a rosette traced, embossed or painted on the bottom of the bowl. Both the lotus and the multiple-petaled rosette, which is derived from the fully expanded lotus bloom and had the same significance, are sun symbols.

One of the earliest vessels with the central rosette feature in the Greek world is the Euboea bowl now in the Benaki Museum in Athens, and another fine example for the late Mycenaean period is found in the gold vessel of the Aegina Treasure now in the British Museum. In Asia Minor the *phiale* is found in clay examples and in two gold vessels from the treasure of Troy II. In Assyrian examples, which have been cited as the bridging form to the Greek *phiale,* the middle rosette with a small boss is found by the 2nd millennium B.C. The Syrian-Phoenician form entered the Greek world about 700 B.C. and strongly influenced the Greek *phiale* in form and use.

By the 9th–8th century period examples are abundant in Assyria, Luristan, the coastal zone of Phoenicia and Tyre, Asia Minor and Cyprus. On a bronze *phiale* from Luristan the small boss is surrounded by three concentric lines and has the flaring rim which will characterize the Achaemenian *phiale.* A lotus flower-and-bud chain, a borrowing from Assyrian art, surrounds the boss. A frieze-type *phiale* of Phoenician manufacture was recovered in a tomb of the Kerameikos in Athens, and is datable precisely by the associated Greek work of early Geometric style. On this bronze *phiale,* around a central rosette with swelling lobes, revolves a stately procession of animals alternating with human figures carrying tri-lobes blossoms. A plain bronze *phiale* found at Gordion dates to around 700 B.C. There are numerous examples of this type which lack any adornment other than the boss, which is undercut and twice encircled. This austere form never really disappears, being reproduced as late as the 1st–2nd century period, as seen in examples found in Pannonia. These examples are unadorned having only a small, neat rosette in the center and no boss. By this time the religious significance of the *phiale* has long since faded.

Evidence for the archaic Greek plate, for which a precise date is difficult to establish (late 7th–early 6th century B.C.), is found in the gold *phiale* from Olympia, the Kypselid bowl which is now in the Boston Museum of Fine Arts (see illustration). The bowl is rather deep for its width, with full, deep fluting. It bears an inscription recording its dedication by the sons of Kypselos of Corinth from the spoils of Kerakleia.

From the tomb burial in Gaul, the Treasure of Vix, dated to the late 6th century, came two *phialai* both

Kypselid Bowl, late 7th–early 6th century B.C., gold. Courtesy: Boston Museum of Fine Arts

Greek bowl (bottom view), found at Olbia, South Russia

Greek Phiale (libation bowl), late 5th century B.C., silver with repoussé decoration. Outer zone: Apotheosis of Herakles; inner zone: Dionysiac banquet. Courtesy: The Metropolitan Museum of Art, Harris Brisbane Dick Fund, 1939

accredited to Etruscan manufacture. The bronze *phiale* with horizontal rim is the older, so-called Homeric basin type with two handles and here with a central boss. The silver *phiale* with vertical rim is completely unadorned except for the gold foil superimposed on the boss and held in place with rivets. Though many exist in bronze, its nearest comparative example in silver is the *phiale* from Maikop on the Kuban in South Russia. The boss has been encircled with an *anthemion*, a wreath of laurel leaves. This recalls Atenaeus' comment that ivy sprays were on occasion tied about drinking vessels and mixing bowls. The engraved image of a bird's head with a great curling beak in the Scythian animal style is a later addition.

The gold *phiale* of the Treasure of the Oxus (see illustration) reveals an animal style which appears archaic when compared to the prevailing Achaemenian type. It has been considered to be most likely a Median product. This is suggested by the manner of treatment of the musculature; the formality of the stance of the lions, rampant and gardant; and the head which is treated three-dimensionally.

A small but important group of *phialai* is formed by the relief *phialai* of the late 5th century, which were products of the Greek workshops. These *phialai* recall the 9th–8th century *phiale* of Phoenician manufacture recovered in Athens on which a procession of animals and human figures alternate. Here however the subject matter is typically Greek. In the silver example from Eze (see illustration), that is now in the British Museum, there is the image of a chariot drawn by four horses, the quadriga, and being driven by a Nike. This image is repeated five times about the center of the *phiale*. Each chariot bears as passenger a god (reading clockwise from the top): Dionysus carrying the *thyrsos* with fillets, Minerva in helmet carrying her shield, Hercules with his club and the feet of his lionskin hanging freely to the right; Ares (?) with his shield, and, finally, Mercury carrying the *caduceus*. Above this scene at the outer rim is a pattern of ivy wreath. Below the scene is a single band of bead-and-reel motif which separates it from the inner frieze of palmettes and lotus flowers. The imagery is blurred due to the fact that this example has been cast from an original work done in repoussé. This was not an uncommon procedure. Examples of terra-cotta *phiale* have also been found which were reproduced by taking the impression from an original presumed to have been worked in repoussé.

The *emblema* and medallion bowls were another important group of plate, frequently intended as show plate, and related in form to the *phiale*. This class of vessel came into prominence in the early Hellenistic period and became increasingly popular in the last two centuries B.C. One of the earliest examples of *emblemata* is a provincial product made in silver and found at Santisteban de Puerto (province, Jaén) with objects of the late 3rd to the 2nd century B.C. period (see illustration). Though the scheme is similar to a 5th century *phiale* the omphalos has an *emblema* which has been interpreted as depicting a wolf's head, the animal apparently holding in its jaws a human head. The schemes of the two friezes, inner and outer, are after Hellenistic themes handled in a provincial manner and have, no doubt, a magical or mythological significance.

By far the greatest number of *phialai* of all periods and locations of manufacture are aniconic forms. The center is always the powerful focus and the motifs are subordinated to a strict concentricity. This in turn is controlled by vertical divisions radiating upward to the rim. The relief *phiale* is commonly the outstanding exception. This concentric and vertical division results in a formalized and strictly measured space. The only developed examples of overlapping planes producing some depth of perspective, and this is very limited, are to be found in the Greek relief *phiale*. Otherwise a single plane has been established upon which symbols have been placed, though they may be three dimensional themselves.

The plant motifs most commonly found on the *phiale* are few in number. They include the lotus, acanthus, ivy, laurel and the nut of the oak and beech. Possibly the date-palm should be included; certainly the stylized palmette can be recognized. All of these plants and trees are associated with gods and goddesses, or have an important symbolic nature independently. The lotus flower, although subjected to extreme abstraction and segmentation, recurs for centuries and in widely separate regions, and is the most common flower motif of the *phiale*.

The lotus, which seen from above is a rosette, the treatment of fluting and the boss all characterize the *phiale mesomphalos*. The form of the *phiale* changes in height, width, proportion, profile and surface treatment. In its most austere version the lotus (or any segmental reference to it) and the fluting are set aside, but the boss is present. When there is no boss, the rosette is substituted.

Little is known about the ritual handling of the *phiale* during and after use. The method of handling *phialai* must have been different in order to accommodate the range of diameters, depths and the absence of boss in some cases. The presumed method for the average to small-sized Greek *phiale* is to have the thumb hooked over the rim and the two middle fingers inserted into the hollow of the boss. When the radius exceeded the size of the palm, it clearly could not have been held in this way. The earlier Greek *phiale*, the so-called Homeric basin, was wide and shallow, but equipped with two handles to facilitate lifting. There is some evidence to indicate that at least in some places and at some periods the *phiale* could be set with either face upward.

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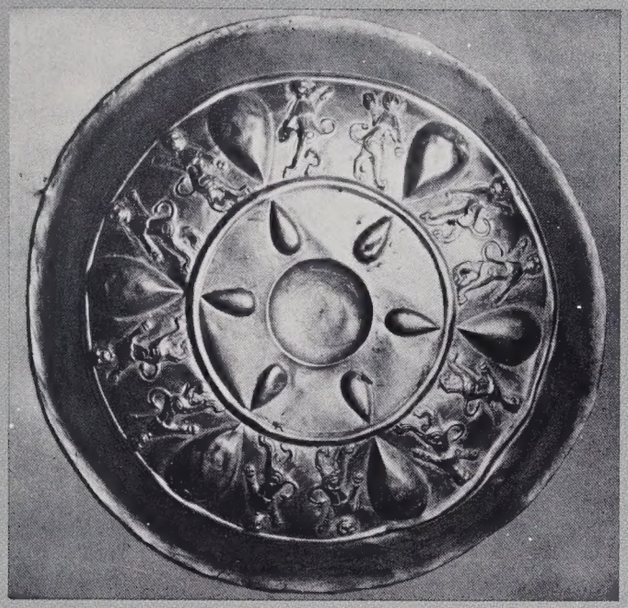
Barbara Young is an American, currently completing her doctorate in the Fine Arts Department of the University of Edinborough. She is senior lecturer at the Faculty of History of Art and Design at Sheffield City Polytechnic.



Treasure of Oxus Phiale, 5th–4th century B.C., gold. Courtesy: British Museum

Phiale from Santisteban de Puerto (province Jaén), late 3rd–2nd century B.C., silver. Courtesy: Museo Arqueologico Nacional, Madrid

Cypriote Bowl, 7th century B.C., silver, partly gilt, 6 11/16" in diameter. Courtesy: The Metropolitan Museum of Art, the Cesnola Collection; purchased by subscription, 1874–1876

Greek Bowl (side view), found at Olbia, South Russia, 3rd–2nd century B.C., silver gilt, leaf motif. Courtesy: The Metropolitan Museum of Art, Rogers Fund, 1922

Phiale from Èze, 5th century B.C., silver. Courtesy: British Museum

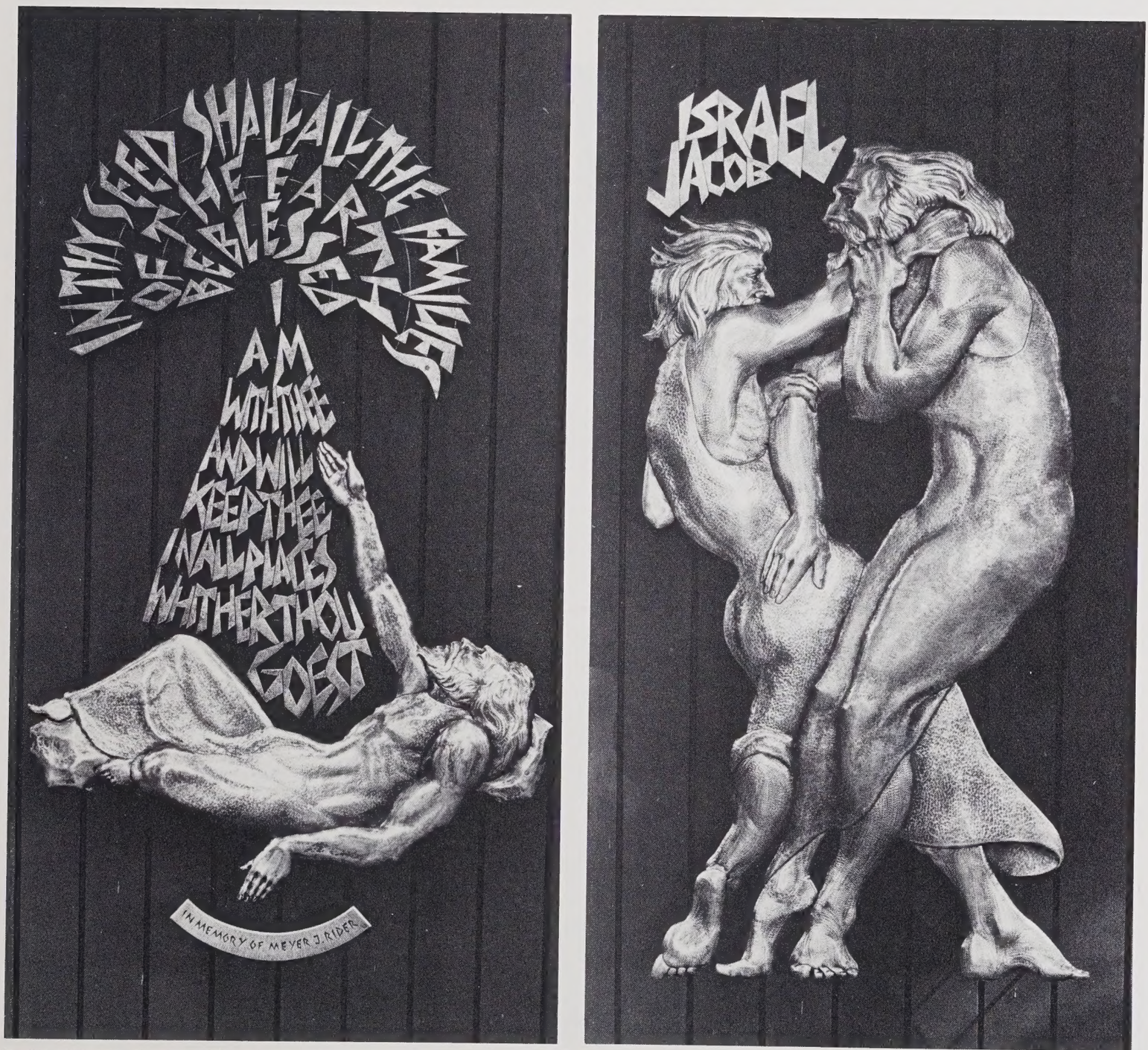
# Kurt Matzdorf

by Bruce Metcalf

*I first met Kurt Matzdorf in 1973 while I was living in New Paltz, New York. I was taking an adult education metalsmithing course at the State University there, where Kurt teaches, although he was on sabbatical that year. In March, I started working for him as a benchworker, helping to make his commissions. During that time I came to know and respect him for his honesty and integrity, as well as his many unconventional opinions. A friendship developed between us, in spite of our contrasting philosophies and styles. As a result, this article will be more about the man than his accomplishments —not so much a record of facts as a set of impressions about what makes him important to me.*

Kurt Matzdorf grew up in between-the-wars Germany, within the sound of a blacksmith's shop. He went to England in 1939 as a refugee from Hitler's Germany. During the war years, he worked for the well-known sculptor Benno Elkan, and then continued his education at London's Slade School of Art. Although this was the era when Henry Moore and Barbara Hepworth were hot stuff, Kurt worked mostly in figurative sculpture. After he graduated in 1949, he emigrated to the United States because he wanted to see what it was like and he had some relatives there. During the first few years he worked on a number of jobs. It was also during that time that he met Alice, whom he later married.

In 1952, Kurt decided to continue his education as a sculptor. He enrolled in the University of Iowa, which had a reputation of being the best sculpture school in the country at the time. The main thrust in American sculpture then was toward abstraction and surrealism, away from the kind of beautiful object that Kurt was interested in making. (He believes that the best art ever made are the Elgin marbles, so one can imagine the difficulties he might have had with David Smith or Theodore Roszak.) During his first year at Iowa he noticed the modern silverwork of Raoul DelMar, who was the metals instructor


IN THY SEED SHALL ALL THE FAMILIES OF THE EARTH BE BLESSED
I AM WITH THEE AND WILL KEEP THEE IN ALL PLACES WHITHER THOU GOEST
IN MEMORY OF MEYER J. RIDER
ISRAEL
JACOB

*The Story of Jacob* wall sculpture (triptych), repousé bronze, each panel 4' high x 2' wide x ½". Lobby of Temple Beth-Jacob, Newburgh, New York. (Left) Top of panel: Jacob and Esau, the sold birthright; bottom of panel: Jacob and Isaac, the stolen blessing. (Center) Jacob's Dream at Beth-El. (Right) Jacob's Fight with the Angel

there. He was fascinated by the simplicity and beauty of the work, and out of curiosity signed up for a silversmithing course. That was the true beginning of his life's work.

American metalwork in the early 1950s was dominated by the Scandinavian Modern influence, but most Americans did not have a great deal of technical skill. As a result, most American silversmithing was simple in both design and execution. Kurt was even told by knowledgeable people that silversmithing was dead and he would answer, "No, we're reviving it." Even though in ensuing years he had to teach himself almost all of what he now knows, Kurt's vision of a lively and vital discipline of silversmithing was formed then.

He received the first M.F.A. in silversmithing from Iowa in 1953, and then spent a year as a teaching assistant there. He took a job at Kansas State University (where he taught ceramics and weaving as well as metalsmithing) and then moved to a teaching position at the State University at New Paltz, New York in 1957.

Kurt still teaches there today, and the large, well-equipped studio belies its humble beginnings. In 1957, there were two gas torches, two hammers and four pliers that were so rusty they had to be soaked in penetrating oil to get them to work. With student volunteers, he literally built the studio and the program. Metalsmithing at New Paltz grew steadily, adding a B.F.A. degree in 1969 and an M.F.A. degree in 1971. Bob Ebendorf came to the program that same year. Today the New Paltz metalsmithing program is widely known as one of the best and attracts students from all over the country.

Kurt takes teaching very seriously. He sees it as an ongoing part of the human process, a process that transcends the individual. When he started silversmithing, there was little information in the field. Techniques like niello or prong-setting, although they were being practiced, were not taught in the art schools or universities. The enormous amount of additional information available in the last 30 years has been the result of dedicated teachers, like Kurt, who contributed to a body of knowledge that will be passed from one generation to the next. As Kurt says, "We spend our lives creating value, accumulating knowledge for ourselves, and if we don't pass it on, we take it to the grave with us. What's the good of it anymore? One generation learns from the previous generation." He sees teaching as much more than a job; he sees himself as

Kurt Matzdorf in front of his rogues' gallery—a wall of photographs of his ceremonial creations—holding a silver Kiddush cup with gold plating and semiprecious stones.
Photo: Robert V. Niles, *Poughkeepsie Journal*

a guardian of a heritage. Perhaps that's a difficult thing for younger metalsmiths to understand, but they never saw the craft when it seemed in danger of dying.

Much of Kurt's outlook has come as a mature realization. He sees himself as a mind expander for his students. He pushes people in directions they don't want to go, but only so they can make an informed decision whether or not to continue in that direction. He sees ignorance and self-satisfaction as a liability. An art student is preparing for a life's work, but also for a chance to improve society. "The way people are taught, that's the way the future will look" is his way of summing up the situation.

An artist's life is not easy, and his education should enable him to endure. Kurt maintains that an artist must develop at a steady rate in order to survive, and there's nothing that can be done to hurry the process. He doubts the value of early success. It's immensely seductive, but it can obstruct the process of self-generation and maturity. Thus the meteors disappear, and the students who learn patience and discipline will continue.

In Kurt's approach to teaching metals, technique is necessary but always understood as a means to an end. He tries to show his students the artistic value in each technique, and therefore won't let them mix techniques when they do assignments. "Too many things going on at once muddle the picture," he claims.

But he stresses that artistic synthesis is more important than technique. He asks his students what they want to share with people, since that becomes the subject matter for their art. Everyone has a natural investigative instinct, so what fascinates the artist becomes important. Once the subject matter is chosen, the artist begins by visually analyzing composition, color and symbolic meaning. After the analysis comes the synthesis, the putting-together of the parts in a manner guided by the artist. As Kurt says, "The artistic personality is the glue that holds things together." The completed work communicates on many levels —not just on gut response and not just on an intellectual level either. One of Kurt's favorite quotations is from Beethoven, an inscription from the *Mass in D:* "From the heart, may it go to the heart."

When the time comes for students to graduate, Kurt stresses to them his concept of a professional in the field. Similar to a doctor or an architect, Kurt's professional

*In Thy Light Do We See Light* repousé sculpture (detail), monel, parcel gilt, 7' high, 11' wide. Apse of Temple Emanuel, Kingston, New York. Photo: the artist

metalsmith solves problems for people. Usually, people who come to a jeweler or a silversmith with a commission can't really explain what they want, because they have not been trained in visual matters. The silversmith listens to the demands of his clients and then researches the traditions and symbolism of the object in question. That information is combined with an artistic vision to produce an original, meaningful object. Thus the professional, as Kurt sees it, does not impose his own values, but rather brings experience, expertise and visual sensitivity to the clients' needs. He is a facilitator much more than a lonely artist-visionary. Thus the life of the client is enriched, which in turn is satisfying to the silversmith.

The metalsmith helps people to celebrate their important occasions. Kurt points out that he has made objects that involve entire life cycles—baby spoons, confirmation cups, wedding rings, anniversary presents and after a person's death, a silver memorial. Each object provides a focus for a particular occasion. He responds to the values of his clients and thus makes himself needed. This is another way he sees himself caught up in a generation-to-generation process that will outlive him.

Kurt's first love in art was Classical figurative sculpture, his second was silversmithing. He has not divorced himself completely from the figure: occasionally he has done large chased panels representing Biblical scenes, like Jacob wrestling the angel. But most of his creative energy is devoted to silversmithing. He favors the softer geometric shapes like parabolas and hyperbolas—a taste probably stemming from the Scandinavian love of beauty in simple form. A variety of techniques are used in the work: raising and fabrication, of course, but also casting, enamelling, niello and making special tools to impart texture to metal.

When another metalsmith comes to visit Kurt, an important part of the sightseeing includes his studio. In the office, where he does designing and bookkeeping, are some examples of his work and what Kurt calls his "rogues' gallery": photographs of some of the more than 500 pieces that he has made since the early 50s. The workshop is small but well equipped. There are the various labor- and space-savers that Kurt has invented, including the rolling cart

*President's Mace and Chain of Office* for Duke University, sterling silver, parcel gilt, mace—37" long; chain of office—48" long. Photo: Leo Spies

with rotating bins of files and the famous "Shopsmith" — a one-tool-does-everything contraption on which he does buffing, bandsawing and even wood turning. It's a pleasant place to work and shows the mark of a man in love with his chosen material and its processes.

Recently, Kurt works mostly on commissions, personifying his ideal of the professional metalsmith. Many of those commissions come from churches and synagogues in the area, so he is constantly designing chalices, Torah crowns and similar work. He has a wide reputation among those likely to give private commissions as well, so there's a good chance he'll be working on an anniversary gift or a memorial at any given time. The bulk of this type of work is done in sterling silver, and most of it is holloware or fabrications. He makes jewelry with equal ease, and occasionally works in gold.

For me, however, Kurt Matzdorf's real greatness lies not in his views on art nor in his artistic output, but in his person — in what he is as a human being. I have known very few people with as much integrity. Through many generations of students, he has been consistently fair and supportive. Even today, he keeps in touch with students from decades ago. I guess what they remember, after all the joys and frustrations of their education, is that Kurt is a highly moral person. One senses that there are certain things that Kurt will never do, that his ethics are not flexible according to the situation. He always treats people fairly, giving equal attention to all his students, so that the brilliant and the slow student both receive a fair share of his time. Always, he tries to do what has proven to be the best in the long run, in his experience.

I know Kurt's students sometimes complain that he is hopelessly old-world and overly paternal. I know that people find some of his work too gaudy for the modern taste. To me, their objections miss the point. Kurt says of himself, "I enjoy everything I'm doing," and how many of us can make that statement?

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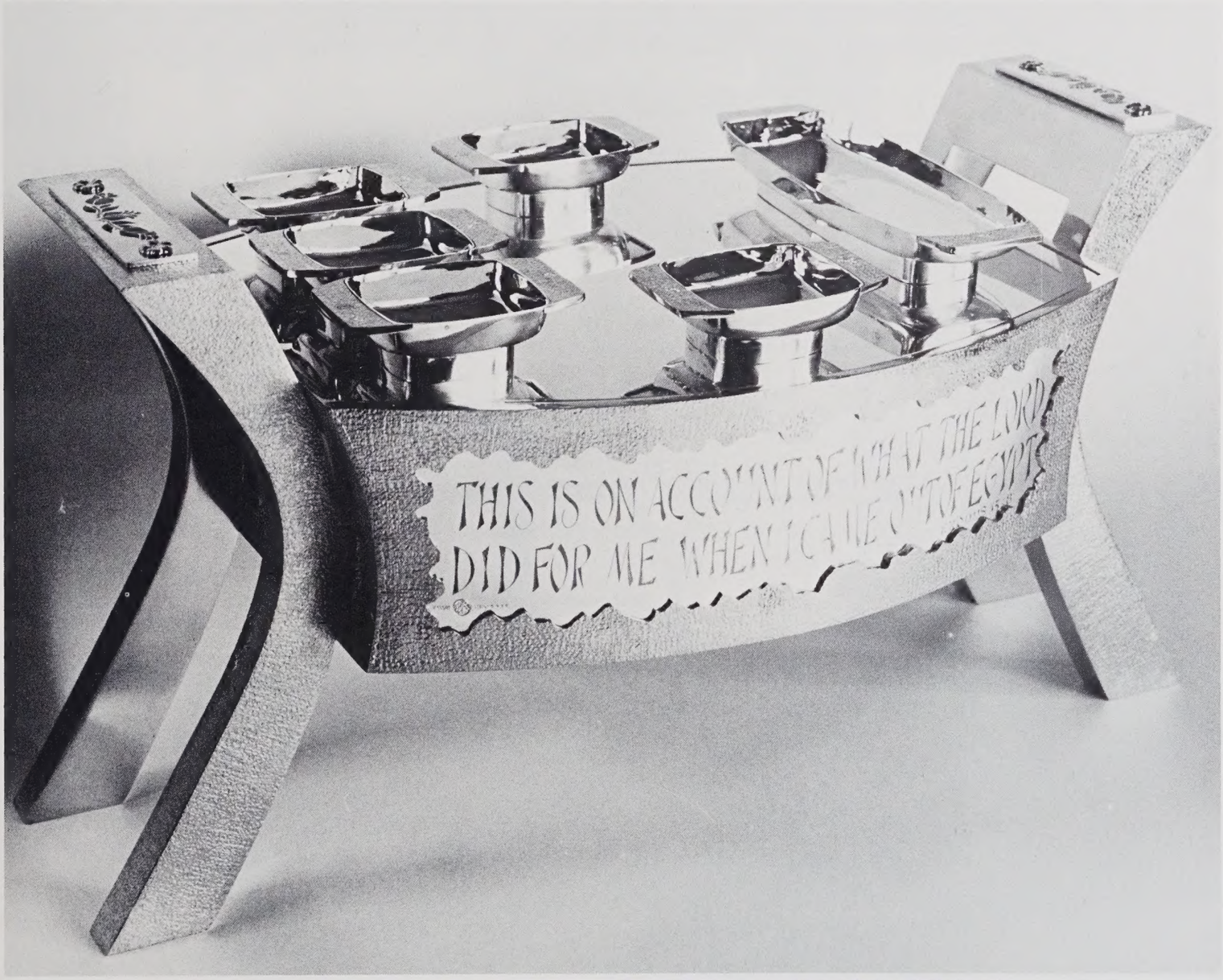
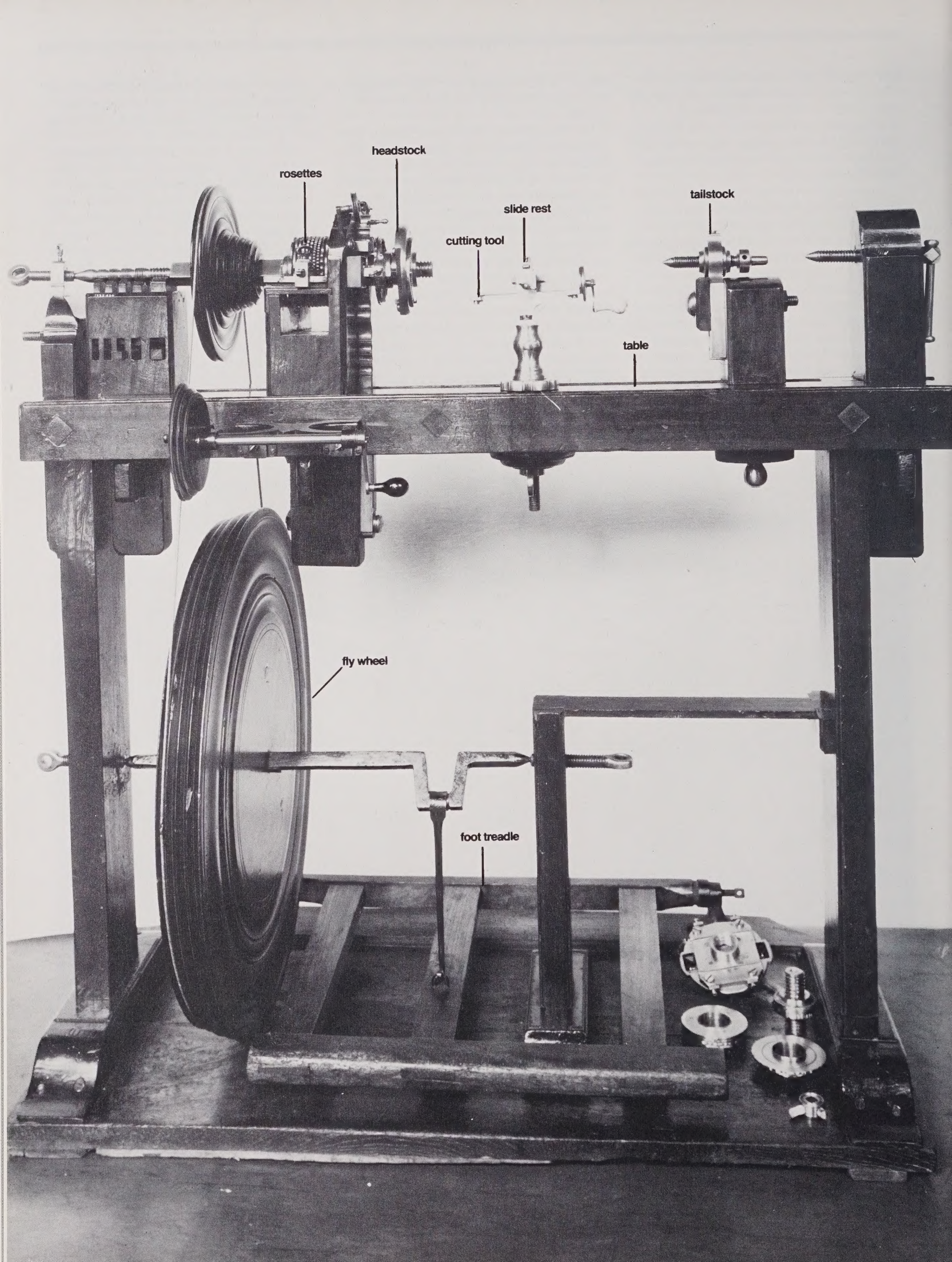
*Bruce Metcalf* is an independent metalsmith, currently teaching at Kent State University.




*Passover Seder Server*, sterling silver, parcel gilt, champlevé enamel, niello inscription, plexiglass, 10" high x 15" long. Private collection. Photo: the artist


headstock
rosettes
tailstock
slide rest
cutting tool
table
fly wheel
foot treadle

# *Rose Engine and Ornamental Lathes*

by Kener E. Bond, Jr.

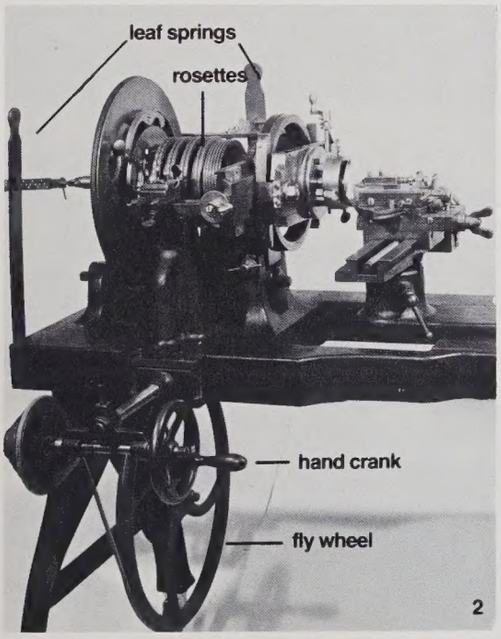
The lathe is a machine tool for holding and turning, drilling, grinding, polishing and making threads on metal, wood, plastic and other materials. Its principal parts are the headstock (attached to the bed, or ways, of the machine), which holds one end of the material in a rotating chuck; the slide rest, which holds and moves the cutting tool; and the tailstock, which holds the other end of the work, moves along the bed and can be clamped in position at any point. This paper will address the development of the specialized Rose Engine and ornamental lathes and their use by jewelers. A unique feature of the Rose Engine lathe is the rosettes, multiple round discs of differing shapes used for cutting a variety of patterns, which are located on the headstock.

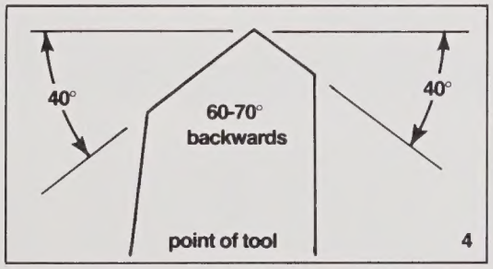
The lathe, in particular the Rose Engine and ornamental lathe, has provided jewelers for three centuries the means to create surface enrichment with controlled precision. The history of the common machine lathe and its functions has been well documented in Robert Woodbury's book *Studies in the History of Machine Tools* (see Bibliography), but contemporary jewelers have been less aware of the Rose Engine and ornamental lathes and the historic contributions they have made to jewelry design and production.

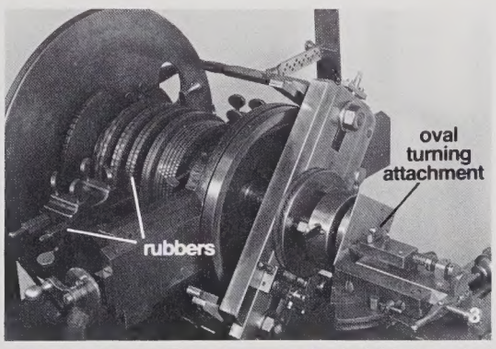
The best definition of the Rose Engine can be found in the Abraham Ress *Cyclopaedia; or Universal Dictionary of Arts, Sciences and Literature:* "Rose Engine, Rose Lathe, or Figure Lathe, in the Mechanic Arts, is a machine used for turning any article in wood, ivory or metal, in the same manner as a common lathe, but it has additional parts by which the surface of the subject which has been turned can afterwards be engraved with a great variety of patterns of curved lines, which, in general, are denominated from the French rosette, from a slight general resemblance which they have to a full-blown rose, and hence the machine is called a Rose Engine."

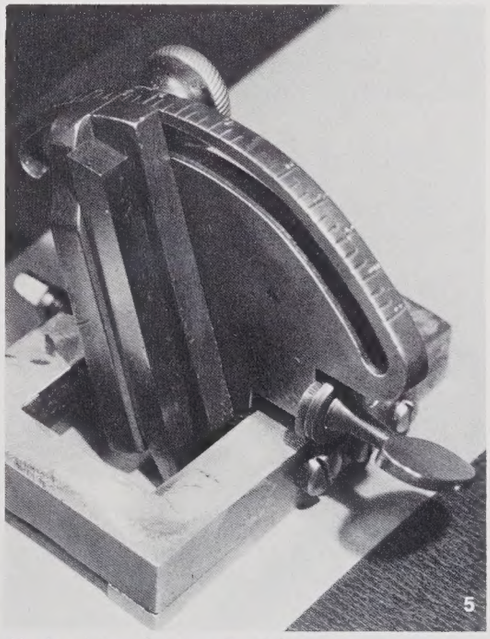
The Rose Engine functions differently from the common lathe in that there is a spring mechanism which allows the spindle in the headstock to move both to and from the operator and longitudinally to the bed of the lathe. Large leaf springs can be seen both at the left-hand end and in back of the rosettes, on an engine turning machine of about 1918, shown in Figure 2. These springs control the tension on the headstock as the spindle moves. In Figure 3, the closeup of the headstock, one can see the rubber or steel followers, which are held in place by four thumbscrews. When the machine is rotated by the hand wheel, the work in the chuck is turned against the cutting tool and a line is cut by the reciprocating action of the piece against the tool. The tool is stationary in this case.

In their respective books Joseph Moxon, Charles Plumier, L. E. Bergeron and Diderot all illustrate similar mechanisms for lathes, which were used in both the turning and decoration of ivory, wood and metal. M. de La Condamine's 1733 paper



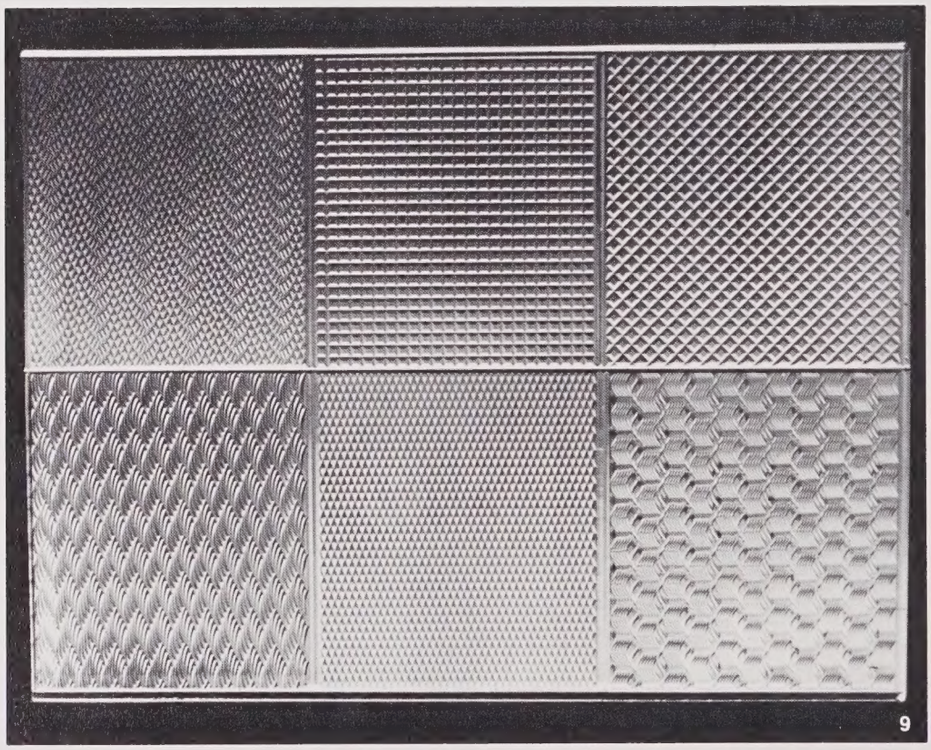

**1.** Rose Engine lathe. This foot-treadle-powered lathe dates from about 1690–1710. The rosettes are clearly visible just to the left of the headstock. Courtesy: The Science Museum, London **2.** Circa 1918 hand-cranked engine turning machine **3.** Closeup of headstock. The oval turning attachment is shown in place. Rubber followers are at left, held in place by four thumbscrews **4.** Angle that the point of the cutting tool would be fashioned for maximum sharpness in engraving small and very fine work **5.** Jig which holds cutting tool during sharpening

"Investigation on the Lathe" (included in Plumier's edition of 1747, see Bibliography) concerned patterns made by the Rose Engine. This paper brought to a wider audience the information on engine turning which was employed by jewelers and watchmakers.

The use of engine turning for surface embellishment in the design of snuff boxes during the 18th and 19th centuries is well illustrated in *Eighteenth Century Gold Boxes of Europe* by Kenneth Snowman (see Bibliography). When engine-turned work is covered with transparent enamels, it is referred to as Guilloche enamels. The engraved lines which show through the enamels are created by a combination of simultaneous motions of the lathe, which moves the piece of work to be cut against the tool, held stationary in the slide rest. The shaft of the headstock can oscillate to and from the operator or parallel to the operator, depending on the placement of the rubbers on the rosettes. The cutting tool has a ¼" x 3" high-speed steel bit which is shaped to the configuration given in Figure 4. The tool must be shaped with great care, as overheating will destroy its cutting ability. The tool's final edge is made by the use of a jig (Figure 5), which holds the bit at the correct angle on a fine Arkansas oil stone. Only slight pressure should be applied to the stone. The point of the tool is usually shaped as shown in Figure 6. The burr produced in grinding is removed by adjusting the jig and putting the tool at a 90° angle to the horizontal surface of the stone and pulling the jig forward with very slight pressure, once for each side of the angle. This last stroke on the stone leaves a polished band, 1/100" wide, which creates the bright cut on the metal. The breadth of the cut depends upon the depth to which the tool cuts. This should be kept shallow in order to allow the point to get as close to the guide as possible. However, it should not be reduced too much as this would produce a rough chip and accordingly unclean work.

In Figure 7 the guide can be seen directly next to the tool. Guides made in various configurations allow the cutter to move over already cut lines, producing an even surface cut. They also support the front of the cutting tool. Further, the guide makes a slight mark on the metal which is used to gauge the progress of the cutting. The mark is subsequently removed as the cutter advances.

Figure 8 shows the effect of the cutting tool when the work is rotated on the lathe and the headstock is not engaged with the rosettes. The result is plain circles on the outside of the form. The inner circles were made with the rubber followers engaging the rosettes on the operator side of the cams and progressively moving into the center. This shows how the configuration changes as the diameter of the circle is decreased. If the rosettes were engaged against the rubber on the side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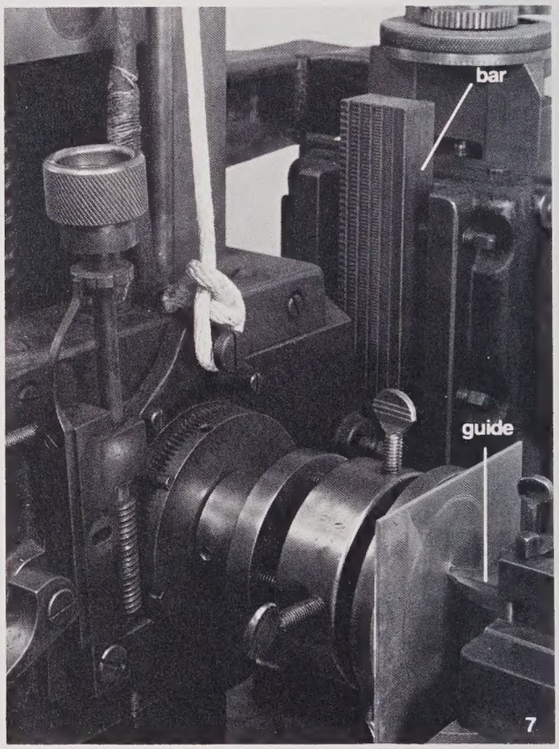

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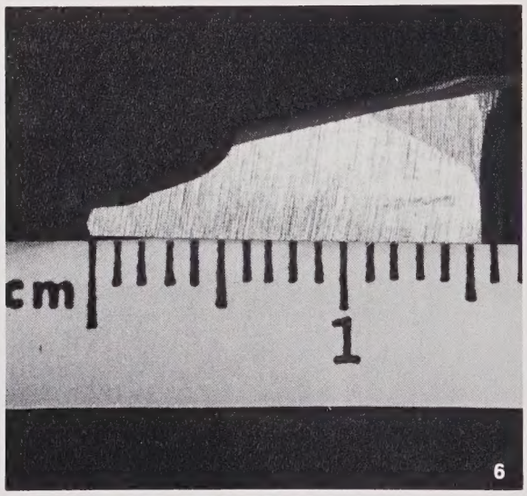

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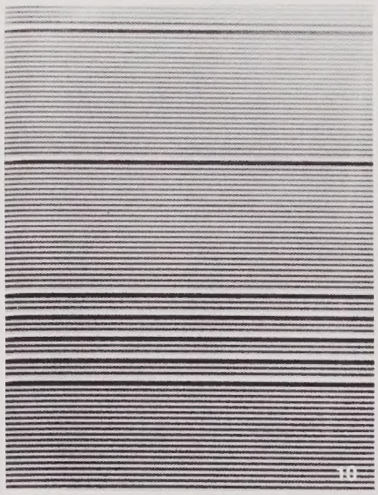
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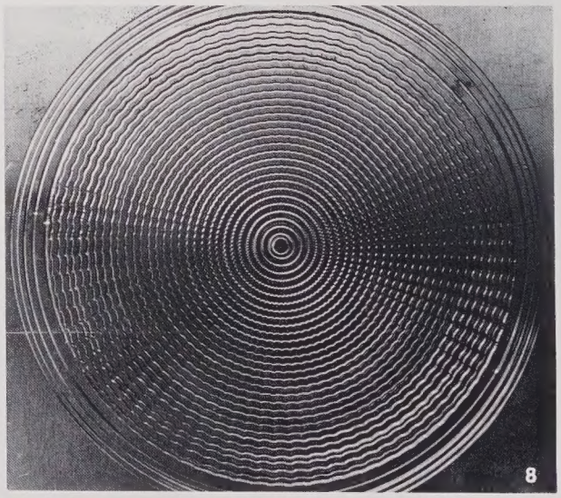
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**6.** Final shape of cutting-tool point **7.** Ornamental lathe which produces straight lines using a bar in the place of rosettes. Here the bar can be seen to the right of the rope. The tool is moved across the face of the work by a slide rest with a screw advance **8.** Pattern made by cutting tool when work is rotated on the lathe and the headstock is not engaged with the rosettes **9.** Patterns produced by the straight-line attachment **10.** Pattern produced by the straight-line attachment

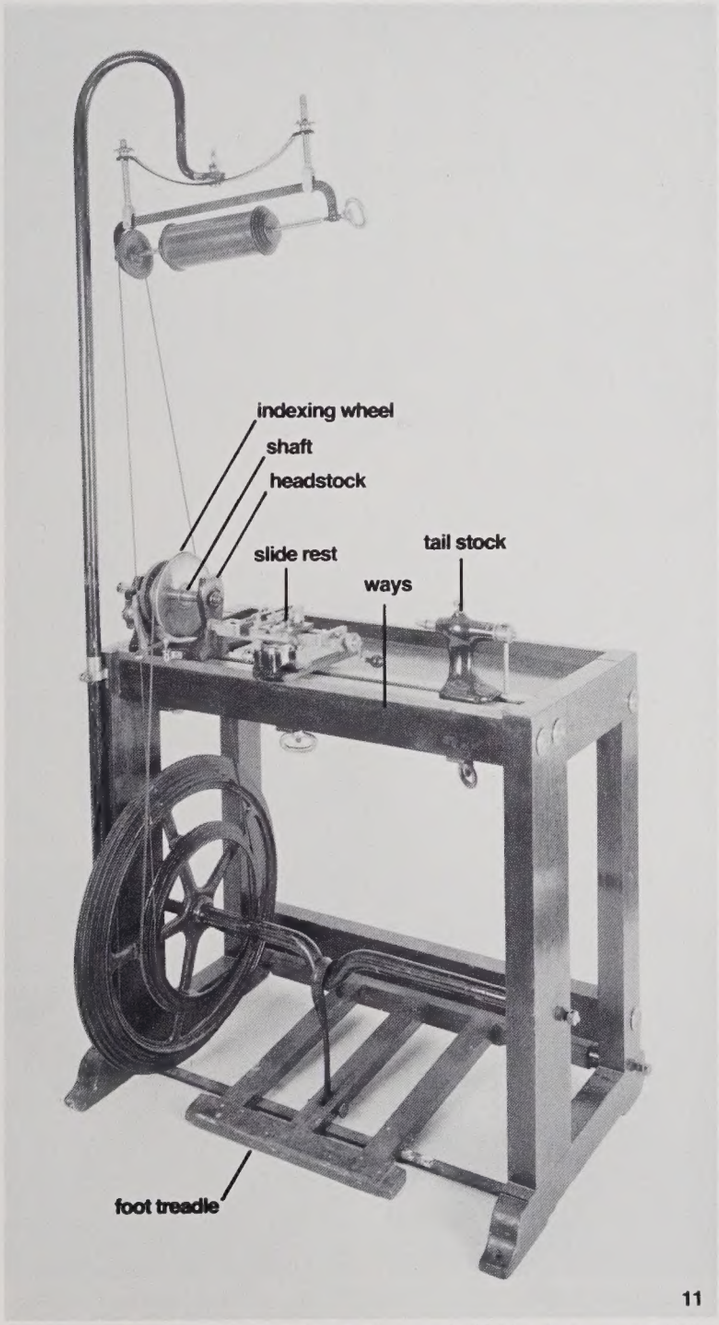
opposite the operator, the wave would be the opposite of what is shown.

This machine has the ability, as do most Rose Engines, to produce ovals, as illustrated in Figures 2 and 3. The chuck can be placed off-center, riding on the large circular ring. Besides the oval attachment, a straight-line attachment can be used to produce surfaces such as those shown in Figure 9, some of which were also done with a combination of circular motions. Machines, such as the one shown in Figure 7, produce straight lines only and use a bar in place of rosettes. This machine can create the type of surfaces shown in Figures 9 and 10 and can also make rays from one point. With it the tool is moved across the face of the work by a slide rest with a screw advance. This type of Rose Engine lathe was successfully exploited by Peter Carl Fabergé in the pieces he created for the turn-of-the-century European aristocracy in which he used Guilloche enameled surfaces.

At the same time the Rose Engine was being developed, from that shown in Figure 1 to more complex production machines in Figure 2, advanced ornamental turning lathes, as shown in Figure 11, were being produced by various firms. The finest and best known was the Holtzapffel lathe, which was made in London from 1794 until the early 1900s. Ornamental lathes and Rose Engines of this period were operated by foot or hand power, as illustrated by the hand-cranked fly wheel in Figure 2 and the foot treadle in Figures 1 and 11.

The ornamental lathe differs from the Rose Engine in that it has no rosettes and the work can either revolve against a fixed tool, the conventional method, or the tool can be revolved against the work. In the latter, work can be held stationary in the headstock, or chuck, by an indexing mechanism, with the tool in the slide rest box being accuated by a belt connected from an overhead drive to the cutting tool spindle. The tool may also be used against the work when held between centers, or it may be used against the face of the work when turned perpendicular to the face plate across the bed, or ways, of the machine.

Lathes, like Rose Engines and ornamental lathes, from the 1600s through much of the 1800s, were all manufactured by hand at great cost, there being few skilled toolmakers and in most shops no steam power. In addition there was no standardization of screw threads. For example, the threads in two Holtzapffels only 35 serial numbers apart in production were not interchangeable in any way. Therefore, because of the cost, these machines were owned by the nobility or landed gentry. Later the Rose Engine was taken over for commercial applications by watchcase makers and jewelers and the common machine lathe was given a leadscrew to cut threads, but the ornamental lathe remained mostly the pro-



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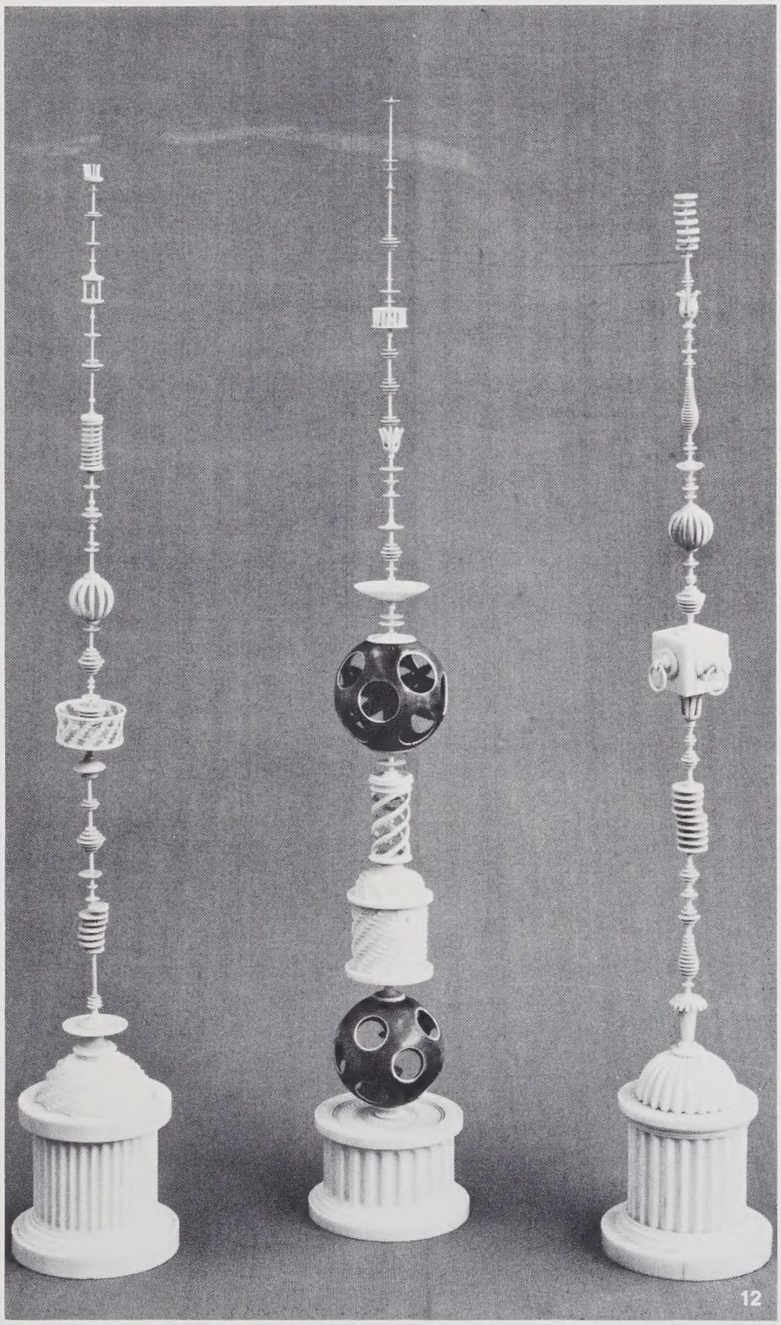
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**11.** Advanced ornamental turning lathe with foot treadle **12.** Victorian ornamental lathework. Courtesy: The Science Museum, London

vince of the wealthy class. Ultimately, the ornamental lathe had less commercial application as a production machine than the Rose Engine. The grand period for these machines was the Victorian age when love for complicated surface decoration and form inspired many amateur machinist-engineers to contribute endless hours to designing various apparati and attachments. With them, the machine could produce surfaces both on flat plates and in three dimensions, as shown in Figure 12. Balls within balls and all types of spirals and basket patterns were within their scope.

The ornamental lathe can cut a thread by one of two methods. A die can be fixed on the left-hand end of the headstock and the thread chaser can move the shaft of the headstock against a fixed tool held in the slide rest. (The slide rest does not move as in a contemporary machine.) Threads can also be cut by using a hand-held tool and moving it along the work, which requires a good degree of skill.

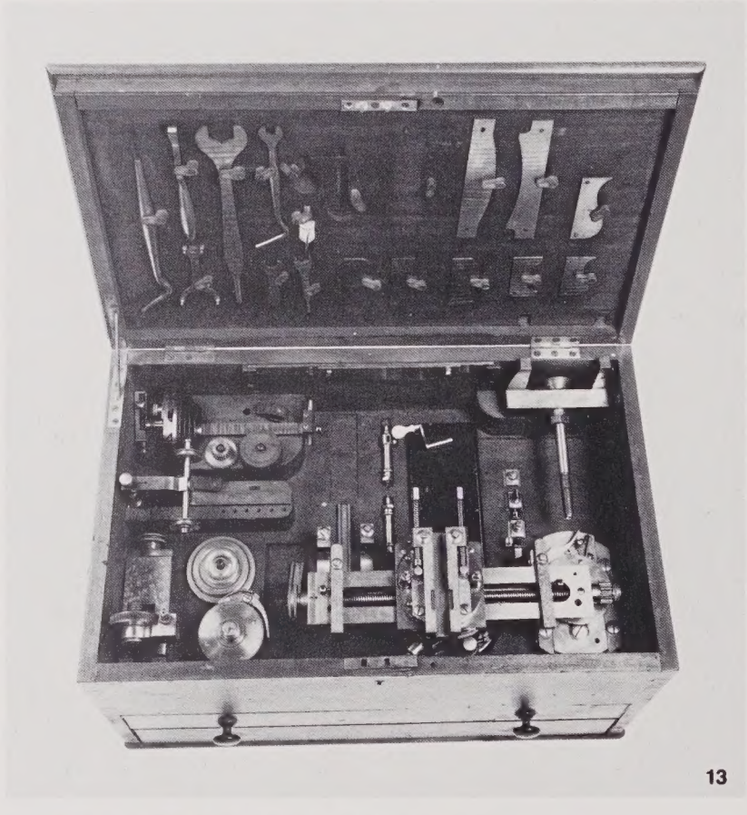
The eccentric cutter on an ornamental lathe (Figure 15) has a cutting tool (Figure 16) which fits under the bolt on the screw on the slide. A pulley at the other end is connected to the overhead drive on the lathe with a round belt. When the cutter is used against a piece of aluminum, as in Figures 17 and 18, the result is a pattern similar to Rose Engine turning.

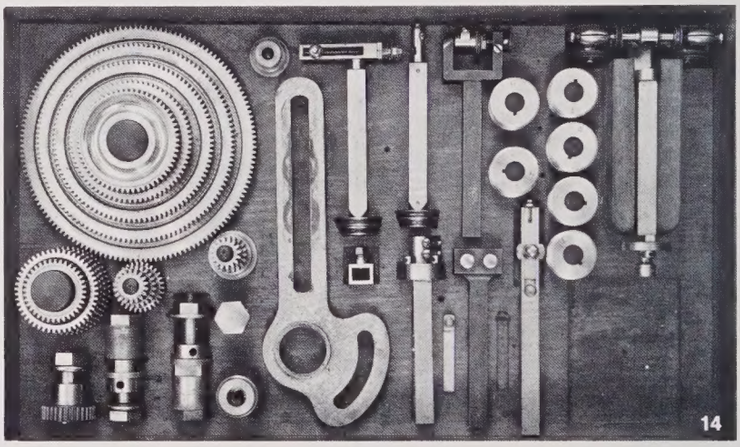
One commercial application of the ornamental lathe, which we come in contact with every day and which was done in conjunction with the geometric chuck, is the decoration on bank notes or paper money. The development of this geometric chuck (Figure 19) is attributed to John Holt Ibbetson. It was designed to provide a means of producing scroll work on bills to prevent forgery.

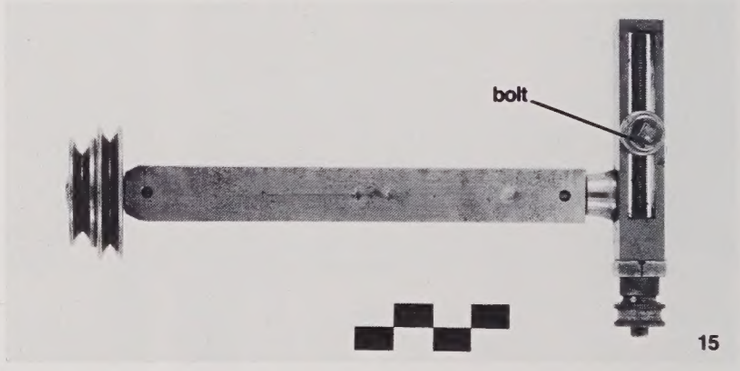
In practice, the geometric chuck is mounted on the lathe and the work is mounted on another chuck, which is threaded on the nose spindle of the geometric chuck. When combined with various cutters the geometric chuck will engrave configurations similar to those found on paper money. It will also do this on all types of hard woods or ivory.

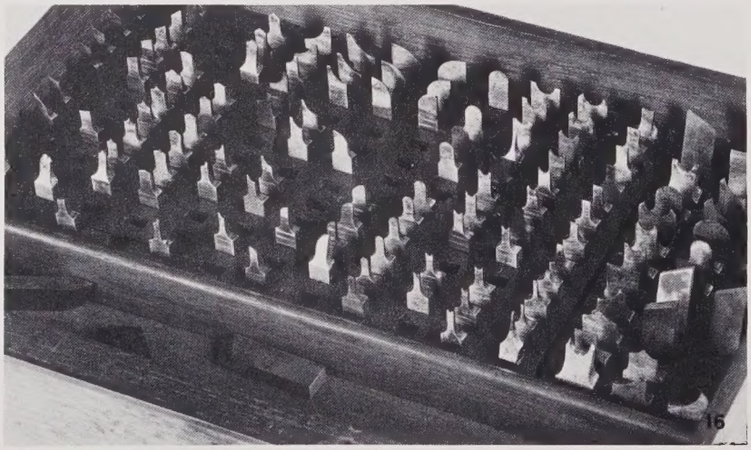
The wreathlike moldings found on 19th-century boxes and used by Fabregé and Cartier were all produced on a machine which had a cylinder of a particular configuration in place of the rosette, prior to the use of the three-diminsional pantograph (an instrument that copies on any predetermined scale). This work was not all "hand" done. From the 1920s to the present the surface configurations created by the Rose Engine were produced on steel dies and stamped in plastic to produce enamel imitations for cigarette cases and compacts. The Art Deco line patterns used in jewelry and the line patterns on radio dials of the 1930s and 1940s were also the result of engine turned surfaces.

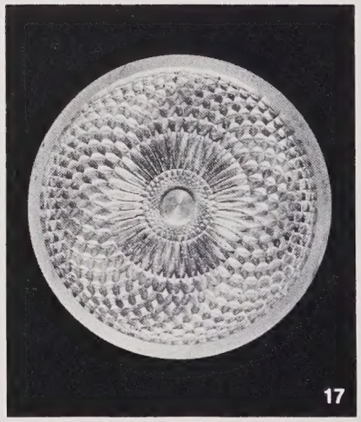
The engine turner is a vanishing

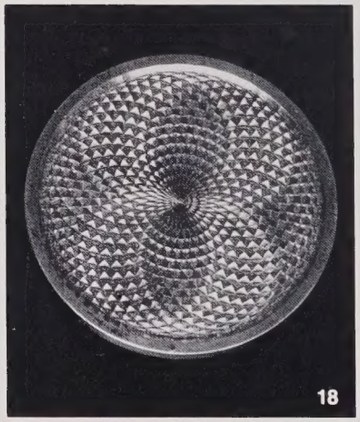










**13.** Open chest of tools for a Holtzapffel ornamental lathe, including a slide rest and various cutting frames **14.** Lower drawer from an ornamental lathe chest, with gearing for a spiral cutting attachment to the right and eccentric frame in the lower center **15.** Eccentric cutter **16.** Case for cutting tools **17.** Work produced by a geometric chuck by Roy Eagle **18.** Work produced by a geometric chuck by Roy Eagle

craftsman and with him, his equipment. Today similar engraving is done on a diamond faceting machine, which requires greater capital outlay and a much longer setup time.

Much of what these early machines could do can be duplicated by mechanisms which you can make and add to a regular lathe. Many books and periodicals are available describing methods used in Victorian times which could be adapted for contemporary machine lathes.

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Kener E. Bond, Jr. is professor of art at the College of Fine and Applied Art at the Rochester Institute of Technology. Due to his interest in the history, technique and esthetics of ornamental lathes, he has recently established the North American Center for Ornamental Turning at RIT.

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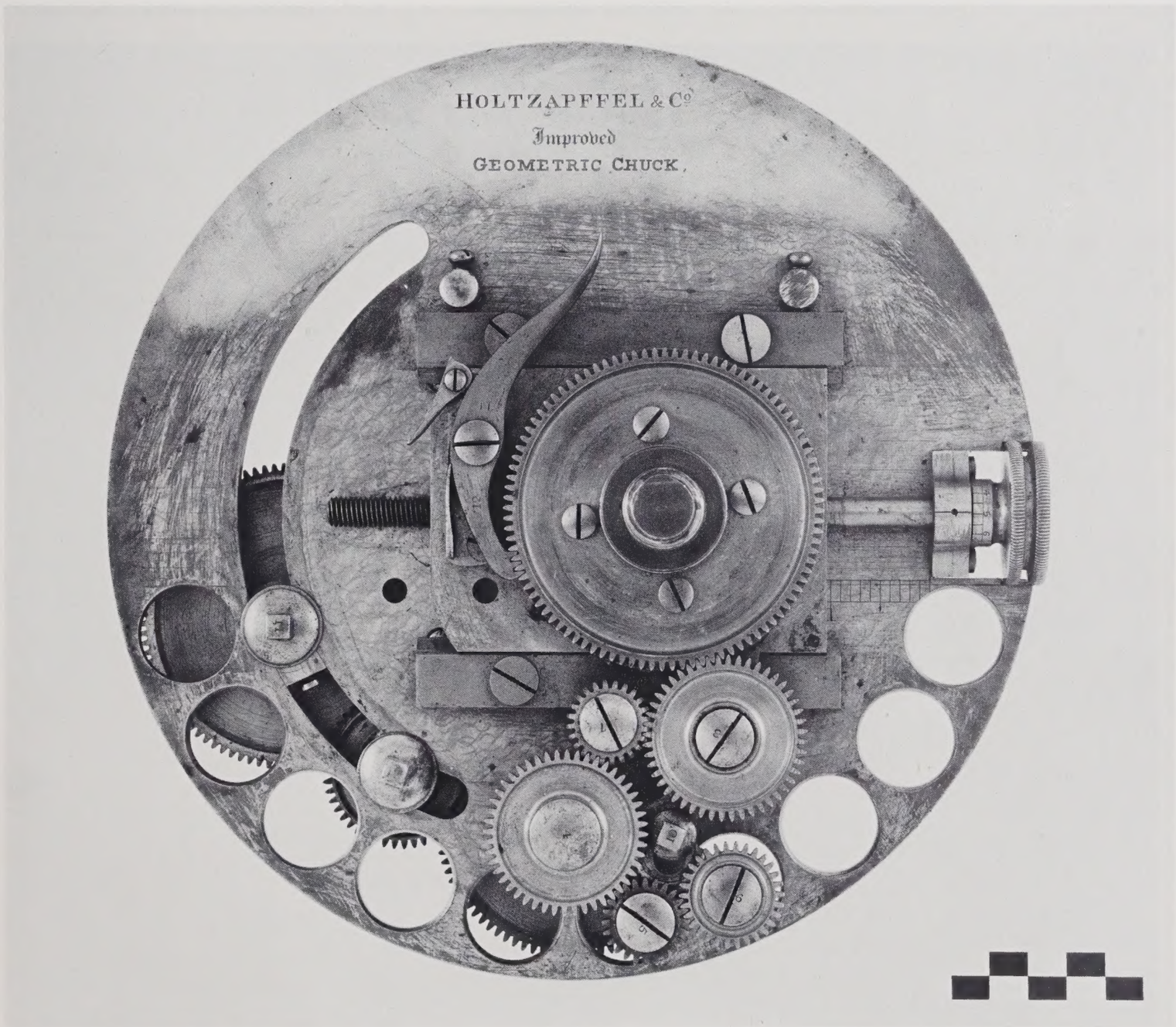



**19.** Ornamental lathe geometric chuck

# The Kingston Tureens

*French silver designed by Juste Aurèle Meissonnier*

Executed 1735–1740
by Pierre-François Bonstrenne
and Henry Adnet

Height: 36.9 cm and 37.9 cm
The Cleveland Museum of Art,
Purchase,
Leonard D. Hanna, Jr. Bequest
and Stitching Collectie
Thyssen-Bornemisza

That which makes a masterpiece is as subjective and debatable as politics or religion. Yet certain features can often be agreed upon which constitute greatness in a work of art. Physical beauty is paramount, followed closely by the ability to stimulate intellectually. Documentability to its maker is always desirable and when the identity of its original owner is known, the object's interest is heightened, especially if that owner was a person of historic consequence.

The pair of silver tureens and trays, one owned by the Cleveland Museum of Art and the other by the Stitching Collectie Thyssen-Bornemisza, embody these features and provide a classic instance of all that is sought in an artifact by a connoisseur.* They were designed by one of France's most celebrated architects and silversmiths. Juste Aurèle Meissonnier (1695–1750) was not just a consummate master of the rococo, the style in which he created these tureens, but is acknowledged as the single individual who brought the style to its peak of perfection. These tureens are one of the few examples of his work known to exist, but they, with engravings of other objects credited to him, testify to his adeptness at using naturalistic design elements and sinuous stylized motifs to create organic compositions of exceptional fluid grace.

The tureens were commissioned by the enormously wealthy Englishman, Evelyn Pierrepont, the Duke of Kingston (1712–1773), in 1734. Over three years in the making by the Parisian silversmiths Pierre-François Bonstrenne and Henry Adnet under the direct supervision of Meissonnier, they were delivered in 1740 and remained in the duke's

possession until his death. They then became the property of his flamboyant widow Elizabeth Chudleigh, who relinquished ownership at her death in 1788. From that point the history of the tureens becomes murky, with a few brief and widely spaced exceptions. Knowledge of their existence disappeared until almost a century later when they were featured in an 1885 exhibition in St. Petersburg, Russia, and in two articles of about the same date in the magazine *Kunstgewerbeblatt.* They then submerged again leaving no trace until 1909 when they were sold at auction in Paris to the American financier John Pierpont Morgan. Either he or his son is believed to have disposed of the tureens before 1925 and their history from then until they were offered at auction in Geneva, Switzerland, in 1977 is unknown.

Given the historical importance of these tureens as perhaps the single most significant post-Renaissance example of European art in a precious metal, it is surprising that they languished so long in semi-anonymity. The tureens are exceptionally heavy, each, with its tray, weighing over 55 Troy pounds. They were cast in the form of large asymmetrical shells, probably by the lost wax method, a technique which had been used for centuries in making monumental bronze sculpture. Each was then covered with botanically identifiable vegetables and biologically correct animals, including radishes, celery, cabbage, onions, mushrooms, artichokes, crayfish, quail, duck, crab and fish. The masterful way in which Meissonnier synthesized a complex yet visually stimulating form from a large number of disparate elements was an effort of genius. Bonstrenne and Adnet's ability to transform Meissonnier's sophisticated design into reality bespeaks an exceptional sensitivity to silver as a working medium. The daring and resourcefulness exhibited by these three men in concert to create the Kingston tureens has given us an indisputable landmark in the history of western art.

—Donald L. Fennimore
*Associate Curator of Metal, Winterthur Museum*

* A thoroughly researched and well-written article "Meissonier's Silver for the Duke of Kingston" by Henry Hawley, Curator of Post-Renaissance Decorative Art, appeared in the *Bulletin of The Cleveland Museum of Art,* December, 1978.

**MASTERPIECE IN METAL** *is a continuing series where Curators are asked to write about a piece of their choice.*

Ann Krohn Graham's silver traveling set, 1978. Courtesy: Cooper-Hewitt Museum, Smithsonian Institution

# The Knife, Fork & Spoon: A History

*by Katherine Pearson*

The evolution of the knife, fork and spoon has been only slightly more rapid than the evolution of man. If you believe architect and author Bernard Rudofsky, their use in eating was the first sign of man's degeneration.

The spoon is essentially unchanged from the Stone Age, but the set of knife, fork and spoon as we know it on the table today is only three centuries old. In between, our trio of eating utensils has been decorated, modified, accepted or ridiculed according to the diet, costume and religion in vogue at the time.

Two recent museum exhibitions—"For the Tabletop," organized by Paul Smith for the American Craft Museum, and "Now I Lay Me Down to Eat," curated by Bernard Rudofsky for the Cooper-Hewitt Museum—have examined the social and design history of dining. Each exhibit was intended to provoke the public to think about habits and designs they use everyday. For the metalsmith, who is in a position to affect those habits and designs, here is a brief history of flatware and the influences that shaped it.

Earliest man dwelled along coastal waterways where shells were an abundant by-product of his nonagragian diet. The broad, concave shell, free of holes, obviously made a better water ladle than a cupped hand. It is widely accepted that primitive man, at some point, tied sticks to shells in a form very close to our own 20th-century spoons. Knives were also fashioned by Stone Age hunters, but as weapons only. Fingers and teeth did fine for eating.

As civilization spread and cultures differentiated, humanity split into three groups of independent advocates for fingers, wooden sticks, or metal knife, fork and spoon. In the cradle of civilization, the oldest cultures of the Middle East have never found a better substitute for their fingers. Even wealthy sheikhs today still dine with their personal digits.

The Chinese opted for wooden sticks over two-thousand years ago. "Chopsticks" is Pidgin English, according to Rudofsky, who supports the school of wooden "eating sticks." When interviewed for *Metalsmith*, Rudofsky insisted, "If you eat for several months with wooden sticks, you will become aware of the metal taste of a fork and spoon. Someone with a sensitive palate cannot tolerate the metallic taste."

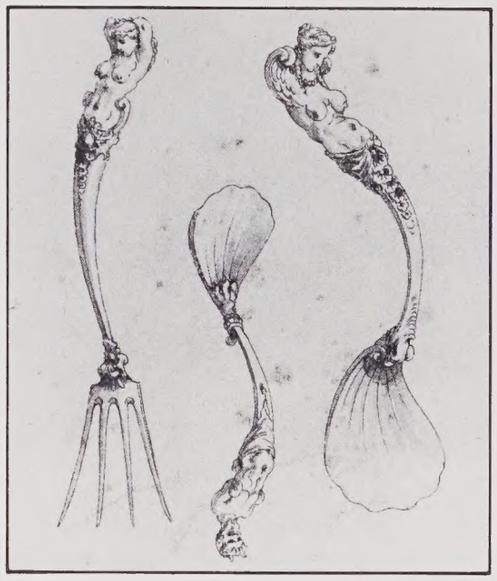
Thus the Western world is set apart not only by Christianity, democracy and industry, but we are forever isolated by the metal knife, fork and spoon.

The spoon was the sole eating utensil for centuries. In Egyptian tombs, spoons of slate, ivory and wood have been found. The Greeks and Romans were first to make spoons of silver, with a spike handle which was apparently used to spear food.

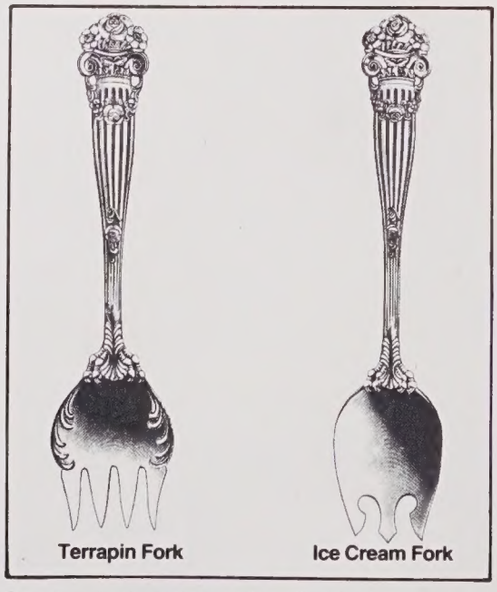
Not until late in the Middle Ages was the knife applied to the eating of food. Initially, it was the same knife which served as weapon whose pointed end carried food to the mouth. The first knives made for eating were used in a pair—one for holding the meat and the second for slicing and spearing. Only after knives were closely identified with the table were they made in silver.

Both spoons and eating knives were highly personal items, carried with you for all meals. Flemish paintings, such as Pieter Bruegel's *Peasant Wedding* and *Peasant Dance*, of the early 16th century, show spoons tucked into a hat band and knives in the belt. The personal character of the spoon and knife resulted in elaborate decorations, each one uniquely designed for its owner. The need for portability also produced such contraptions as folding spoons as early as the 15th century. Later, when the fork was

**Top:** Spanish steel (?) traveling knife, fork and spoon with handles that unscrew, plus carrying case, 17th century. Courtesy: The Metropolitan Museum of Art, Gift of Walter H. Ehrich, 1920 *The Peasant Wedding* (center) and *The Peasant Dance* (bottom), details, by Pieter Bruegel, the Elder, reproduced in Gustav Gluck's *Pieter Bruegel, the Elder*, New York: George Braziller, 1936, plates 47&48



Jelly Knife Macaroni Server



Terrapin Fork Ice Cream Fork

**Top:** Drawing for an Italian knife, fork and spoon set, second half of the 16th century. Courtesy: Cooper-Hewitt Museum, Smithsonian Institution **Center and above:** Victorian silverware designs from *Knife/Fork/Spoon* exhibition held at the Walker Art Center, sponsored by Towle Silversmiths, 1951

more common, pocket-size traveling sets included all three utensils.

Through the Renaissance, the spoon had a round bowl and a short, round handle, which was gripped in the fist, much as a small child would. During the 16th and 17th centuries, the spoon was modified to a shape much closer to the spoon we are familiar with today. A round bowl was needed to retrieve chunks of meat from the "stews" of the Middle Ages, but as food became more refined in Baroque Europe, meat and soups were served separately. Once the spoon was used only for liquids, the bowl gradually became egg-shaped. The Elizabethan ruff precluded feeding yourself with a fist-held, short spoon. So to accommodate the need for sustenance while wearing a ruff, the spoon handle became longer and flattened.

The fork met with great resistance. Even after its introduction among wealthy Italians early in the 16th century, it took 150 years to catch on in England. It was labeled "effeminate" by the middle class Italians and "the work of the devil" by the Italian church. It did, after all, imitate the devil's pitchfork.

The predecessor of the fork was the skewer, and for the first century of use, the fork resembled a straight skewer, divided into two tines. Only when the fork began to replace the pair of knives, in mid-17th century England, were the tines curved like the spoon. The pointed knife was also abandoned in favor of one with a rounded end, which remained the style throughout the 18th century.

In light of the slow acceptance of the dinner fork, it is worth noting a few specialized forks that were deeply entrenched in custom long before the dinner fork was introduced. Very small forks were used for the serving of berries, sweetmeats and preserved pears as far back as the 11th century. In his museum exhibition, Bernard Rudofsky points out another culture which reserved forks for special treats: "While cannibals convey everyday fare to the mouth with their fingers, they use wooden forks for eating human flesh." His implication is that our common practice of cutting up the corpse of a turkey at the table is "only a few notches above cannibalism."

Despite strong resistance, the fork was accepted because France and all of Europe at that time were looking to Renaissance Italy for cues in the social, decorative and fine arts. Other eccentricies of world powers remain as modern customs. At the peak of his influence, Louis XIV brought together the knife, fork and spoon on the table and the whole world (at least, the whole Western world) followed. Hosts of the French court ordered numbers of "cadenas," sets of three utensils which were matched in decoration and encased in elaborate covers. During Louis XV's reign, the court-supported silversmiths developed a four-tine fork, which eventually became our standard as well.

A round-tipped knife, an oval-bowl spoon, and a curved fork with four tines were therefore established on the table before America had anything to say about it. The early settlers imported their flatware from England. Even when the first silver flatware was made in America, about the middle of the 17th century, the production was mainly spoons.

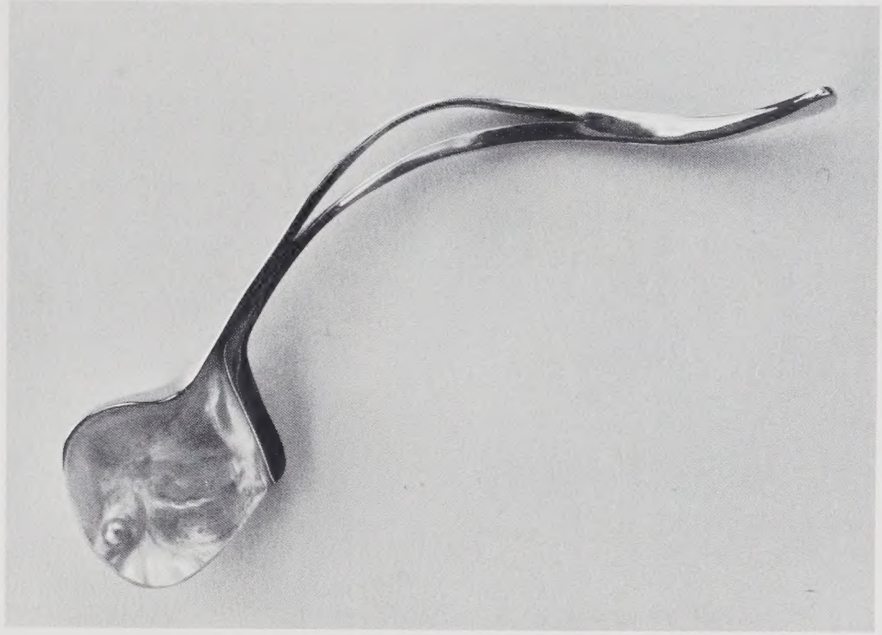
Donald L. Fennimore, Associate Curator of Metal at the Winterthur Museum says, "Now the only remaining antiques from that time are spoons; that's an indication that knives and forks weren't being made until the 19th century." Mr. Fennimore, who works with one of the most extensive collections of American flatware, points out a few oddities here as well, "While the spoon dominated the American table in the 18th century, you'll also find highly specialized designs. The sucket fork had tines at one end and a spoon bowl at the other for the eating of candied fruits in thick syrup.

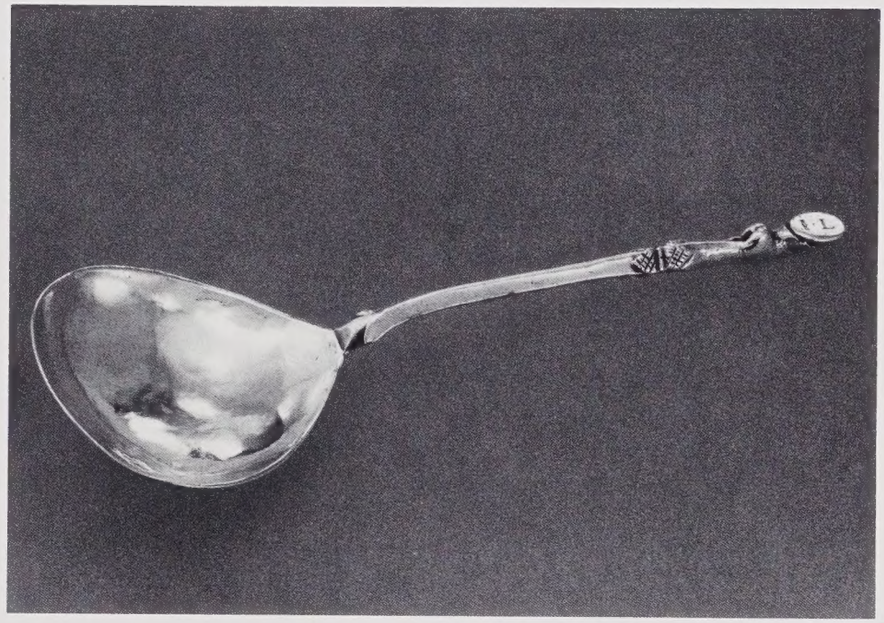
"There was a slow growth of affluence in America. Not until about 1810–1825 did dinner forks begin to be more commonplace, particularly in Philadelphia, which was the premiere center for silver."

To fully appreciate what happened in the 19th century, it is helpful to look back at the European table at the beginning of the century. The matched set of knife, fork and spoon remained, and the French returned two step-children to the table. When the dinner fork had earlier gained acceptance, it not only diminished the use of the berry fork, but it replaced the smaller of the pair of knives once used for holding and cutting. The French revived the smaller fork and knife as a dessert or tea set. So by 1800, the well-appointed French place setting might have included a total of five pieces of flatware.

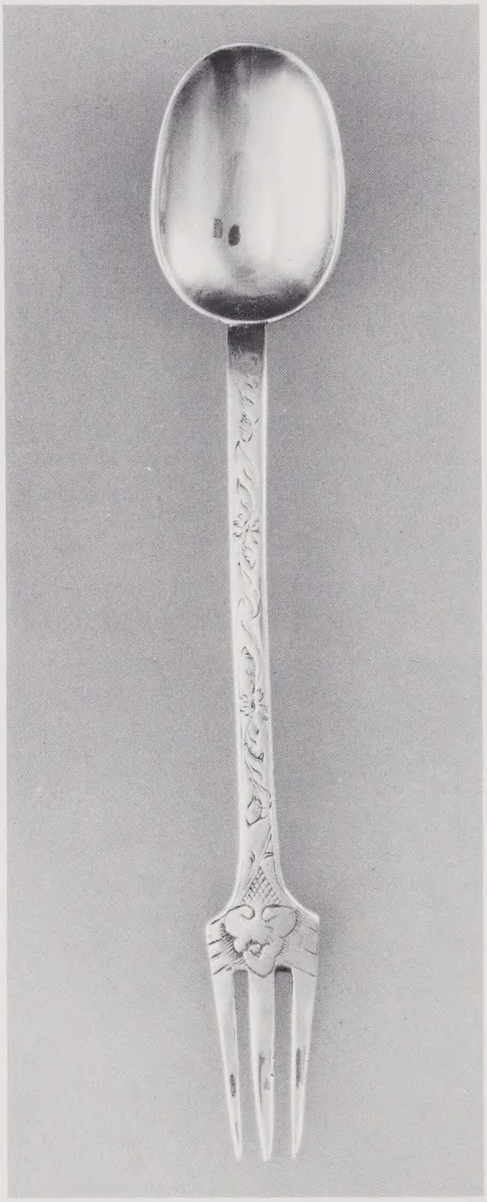
In the meantime, world power had shifted again—to Queen Victoria's England in the height of the Industrial Revolution. The independent silversmith became anonymous, selling his design talents to a manufacturer of flatware. A new class of wealthy industrialists were anxious to flaunt their riches and thus began the great flowering of forms and patterns. A Victorian service for 12 might have crowded as many as 300 to 500 pieces of flatware onto the table.

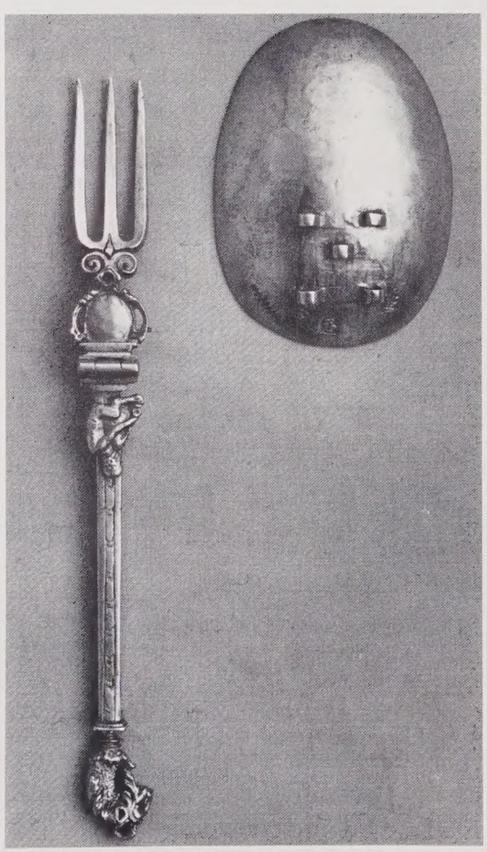
"It was a veritable army of utensils,





**Top left:** Wooden cannibal forks from the Fiji Islands. Courtesy: University of Pennsylvania Museum **Top right:** Caviar Spoon by Susan Noland, sterling silver and Biwa shell, forged and constructed 1980. Courtesy: the artist **Center right:** American silver spoon made by Ahasherus Hendrichs, ca. 1680-1700. Courtesy: Yale University Art Gallery, the Mabel Brady Garvan Collection **Above left:** European steel knives and forks, 16-18th centuries. Courtesy: The Metropolitan Museum of Art, Gift of Rutherford Stuyvesant, 1893 **Above right:** British silver traveling set, c. 1685, including cup, spoon, snuff box, grater, fork and knife. The set was placed in a specially made red leather case, which followed the shape of the cup. The cup is engraved with figures and floral designs in the Chinoiserie manner. The handle of the spoon and fork unscrew to fit in the case. Courtesy: Philadelphia Museum of Art, Given by Mrs. Edward S. Harkness





each one having a highly specialized function," says Mr. Fennimore. "There may have been only small differences between a cranberry fork, a pickle fork and a mustard ladle. Within this regimented and formidable code, one had to know what he was doing. Our precedent for etiquette derives from the Victorian era." (We have since rejected much of the rigid social and moral codes of Victorian times, while we still cling—without question—to the decorative arts.)

In the 20th century, flat silver on the table has declined in favor of metals that are less expensive and that are more resistant to wear. The Bauhaus functional philosophy has introduced simple, clean designs that offer the modern bride alternatives to the highly decorated, traditional patterns. However, even designs more appropriate to the 20th century are sometimes treated by 19th-century marketing standards. Ron Pearson's sleek "Vision" pattern for International Silver Company is sold with 13 different pieces; although that's far fewer than the average 35 pieces per pattern. A company spokesman explained that the unusual handle design did not lend itself to all of the specialized pieces. For instance, they made only a lemon fork and eliminated the olive and pickle forks. Forks in the pattern were pared down to the lemon fork, the dinner fork, the salad fork and the cold meat fork, which can double as a serving fork.

The 20th century has also seen a limited return of the independent silversmith making flatware and serving utensils. Ann Krohn Graham's silver traveling set, which was in both the American Craft Museum and the Cooper-Hewitt exhibits, grew out of historical inspiration. "While I was in graduate school at Iowa," Graham explained, "I was taking a course in Renaissance art history and came across drawings of flatware that interlocked. I had always been fascinated with camping gear. I even had a small collection of knife, fork and spoon sets that lock or slip into one another, but they were lacking in sculptural form.

"I started working on a design for pieces that would interlock to become a new form. Some flatware is too flat for me; I'm expanding it to be more sculptural. I'm considering the negative spaces when the pieces are put together on the table."

"I'm much more a museum freak than ever before," she added. "I feel out the history of the metals in any museum or country that I visit, asking myself how I can translate one idea to a present use."

Susan Noland, of Des Moines, Iowa, wasn't aware of the historical precedent when she incorporated a shell in her caviar spoon, which was shown in the "For the Tabletop" exhibition. The shell itself, one from Japan with a pearl just starting to form, was the source of inspiration. "The curve in the shell contributed to the shape of the handle," says Noland. "I was very aware of how it would sit on a table; I didn't want it to lie flat."

The craft community has been quick to criticize commercial, decorated patterns. Yet if craftsmen are to build a better mousetrap, as far as eating utensils, they must rethink how the knife, fork and spoon serve our lifestyle, our diet and menus, and our broader sense of priorities.

Certainly our eating habits are changing now with increased emphasis on nutrition and fresh foods. Will *nouvelle cuisine* require a new design of utensils? Will a trend to meatless meals do away with the knife or alter its shape to a spreading utensil? Is it even possible that with our current horror of chemical pollution from unexpected sources, that we, like the Chinese, will decide that metal is an unacceptable material for eating and drinking?

When you consider that the design of the knife, fork and spoon have changed very little from their conception until today, it seems unlikely that dramatic changes will be made now. But a craftsman working independently and executing his own designs is free to question and improve upon the basic notions that evolved into today's eating utensils. One might even argue that freedom from manufacturing restrictions is for the independent metalsmith an ominous responsibility to lead the way with valid alternatives.

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*Katherine Pearson* has written about crafts as both fine and decorative arts for interior design and craft publications for the past seven years. She is currently publicity manager for the American Craft Council.

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*For the Tabletop*. New York: American Craft Council, 1980

*Knife/Fork/Spoon*: the story of our primary eating implements and the development of their form. Minneapolis: Walker Art Center, 1951

**Museum Collections of American Flat Silver**

Boston, MA—Museum of Fine Art
New Haven, CT—Yale University Art Gallery
Houston, TX—Bayou Bend Collection, Museum of Fine Art
Chicago, IL—Art Institute of Chicago
Winston-Salem, NC—Museum of Early Southern Decorative Arts
Los Angeles, CA—Los Angeles County Museum

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**Top:** Silver sucket fork, made in New York City by Jesse Kip, 1682–1722. Courtesy: The Henry Francis du Pont Winterthur Museum **Bottom:** Dutch parcel gilt spoon and fork combination, 1665. Courtesy The Metropolitan Museum of Art, Gift of Mrs. S. P. Avery, 1897

# Alternative Etching Methods

*by Linda Threadgill*

All pieces by Linda Threadgill
Photos: Jim Threadgill

The spray etching process, employed in industry to produce circuit boards and a wide variety of small metal parts, has many applications in contemporary metalwork. With spray etching machines, the etchant is either splashed onto the piece by rotating paddles or pumped against the plate through stationary or oscillating spray nozzles. But spray etching machines are an expensive addition to the individual shop or school studio. While excellent for production runs, a spray etching machine may not be appropriate for processing one or two plates at a time. Inadequate installation space, drainage and ventilation may also make such an investment impractical. However, a simple variation on the tray etching process offers an alternative to spray etching. This variation bubbles the acid against the plate to achieve a faster and more even etch.

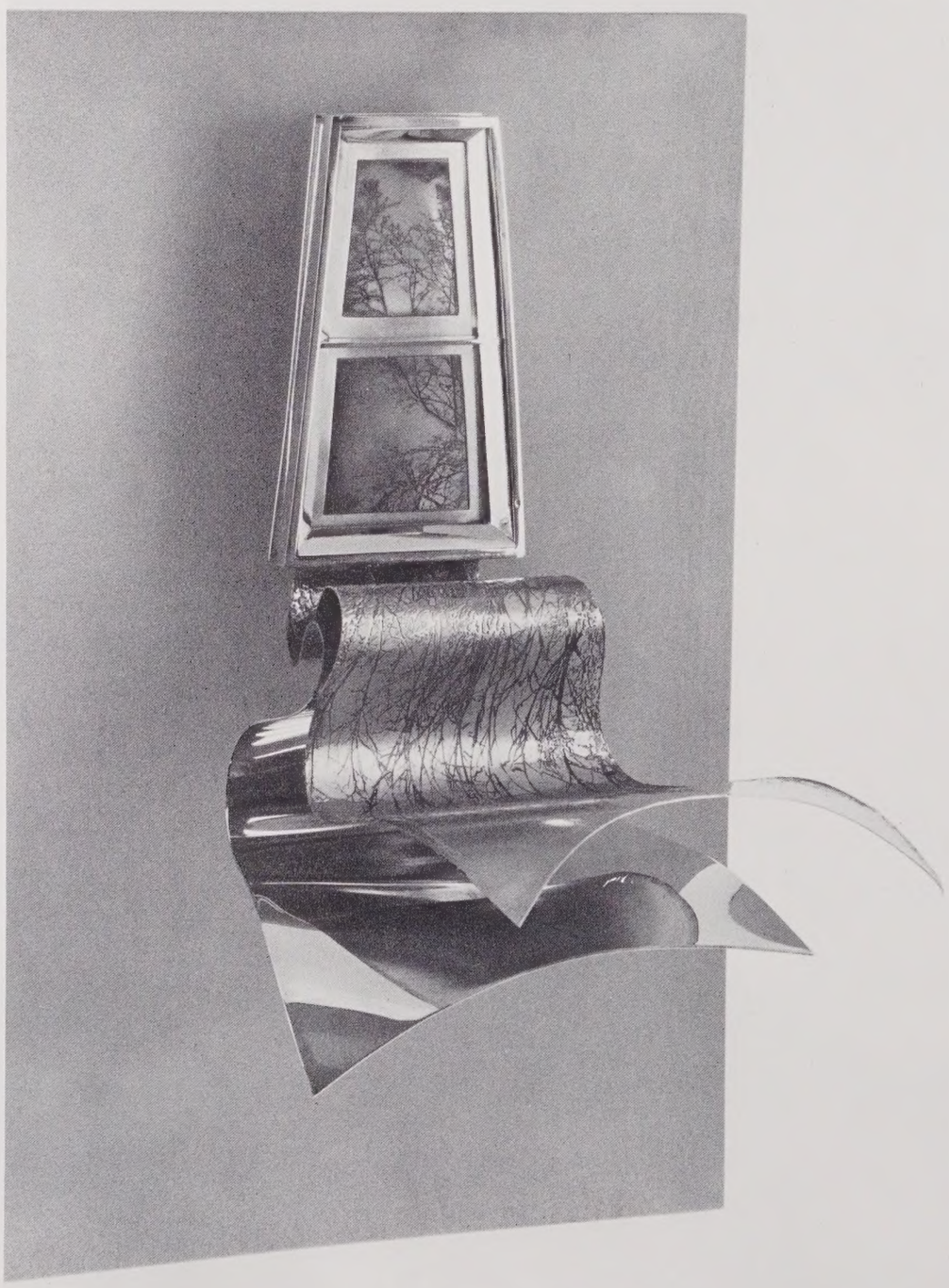
Metal tends to etch in all directions at once, and this lateral etch, or undercut, results in image loss. Spray etching methods use special additives in the spray process to control this undercut. But with tray etching, which requires much longer periods of exposure to the acid, the problem of undercutting is increased. In an effort to produce a detailed etch or milling (etching completely through the plate) with as little undercutting as possible, a variety of metals and acids were tested.

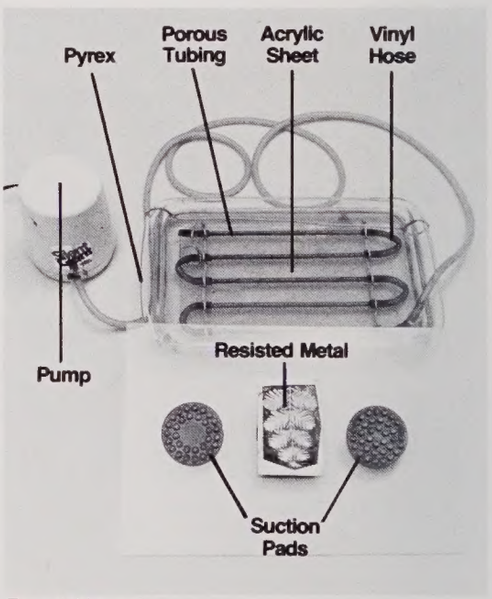
These tests were conducted with the use of Dynachem Photo Resist, although a stencil may be made of any acid resisting material that will withstand extended exposure. The back of the plate can be quickly made resistant with contact paper.

## The Setup

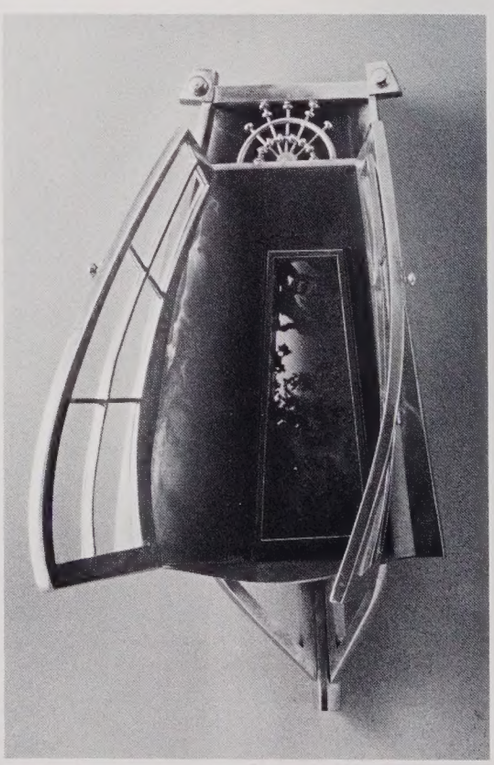
A rectangular pyrex tray is used to hold the etchant. The amount of acid poured into the tray will depend upon the method of supporting the metal over the etchant. With the method described below, the tray will be about ¾ full. Air is pumped through the etchant by means of small tubes of porous plastic, which are generally available in aquarium supply stores. These tubes are connected to one another with sections of vinyl hose and are wired to an acrylic sheet held in the bottom of the tray. The air is supplied by a small aquarium pump. The resulting bubbles will cover the surface of the etchant.

In order to hold the plates to be etched face down against the acid, they are attached to an acrylic sheet by means of suction pads commonly used for holding






Tray etching setup



**Page 35:** *Greenhouse,* brass, copper, wood, photo milling in copper, 6x6", 1980 **Above:** *Window,* brass, copper, lexan—brass photoetched and plated, 10x6", 1980

*Florida Room,* brass, copper, lexan, photo milling in copper, 9x5", 1980

soap. This also provides a fast and safe method for checking the progress of etching. If thin enough, the metal will float on the cushion of bubbles without support

### Materials and Acids

The tests were run primarily on bronze and copper, although the technique will work for any metal, provided the appropriate etchant is used. Tempering, alloying and heat treatment can all influence the quality of etch. However, the quality of the metal proved to be the most important factor in obtaining a fine quality etch.

The best etch was achieved on electroformed copper sheets from a Udylite bright copper bath. The etch was even and showed very little undercut. Engraver's copper also gave good results, but with more undercutting. Electrolytic tough, pitch 110 copper etched quickly and smoothly. While it left a bright surface, the etch was very undercut. Roofing copper gave the least even etch.

A variety of acids were also used. Ferric Chloride 30° Baume gave smooth results on all copper alloys and bronze. Ammonium persulfate gave a fast and even etch. It had the added advantage of being a clear, clean acid whose progress was easy to check.

It is important that the metal be perfectly clean before etching. Any oil or contaminant on the metal will encourage an uneven or completely blocked etch. To assure cleanliness, the resisted plates were put in a strong nitric acid solution for one minute prior to being placed in the aerated tray.

This method of tray etching provides a small school or studio with an alternative to spray etching. With good etching results, the possibilities of expression with this technique can be explored more fully.

**Supply Source List**

*Acids:*
Local supplier or Fisher Scientific Supply, 711 Forbes Ave., Pittsburgh, PA 15219

*Pump and air tubes:* Local aquarium supplier

*Photo Resist:* Dynachem Corporation, 1670 S. Amphlett Blvd., Suite 203, San Mateo, CA 94402

*Copper Plating Bath Chemicals:* The Udylite Company, Oxy Metals Industries Corp., 21441 Hoover Rd., Warren, MI 48089

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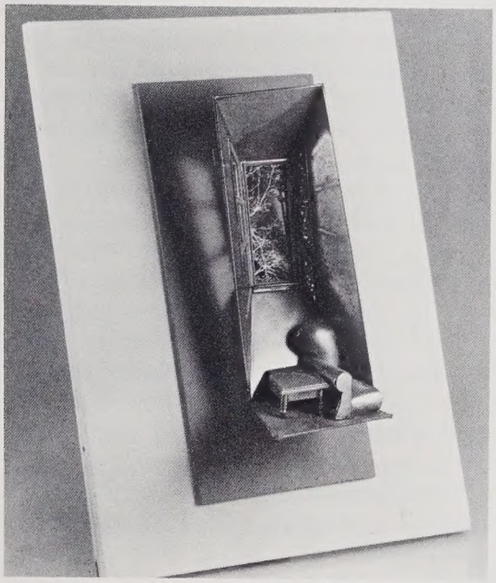
Linda Threadgill is a metalsmith and instructor at the University of Wisconsin, Whitewater.



*Whitewater Window*, copper, acrylic, photo milling in copper, 9x4", 1980

*Sunspace*, brass, copper, moonstone, silver, photo milling in copper, 9x5", 1980

Detail of etched portion of *Interiors*

# Optical Qualities of Carved Gemstones

by Henry Hunt

*This article is the first of a three-part series*

The fascination of mineral crystals arises from their remarkable optical qualities. When light enters a crystal, it is transformed. Direction, intensity and color can all be altered, sometimes quite radically, as in the case of laser produced crystals. The awe that this light-handling quality inspires has made the gem crystal a part of the mythology of virtually every civilization. As a consequence, some stones have achieved remarkable symbolic status. Some have even afforded direct physical impact, as when reputed to cure disease or foretell the future. In our time this reverence is confined to monetary value which may well be the most potent symbol of all. Certainly it has resulted in more turmoil and disruption than such previous uses as swallowing powdered gemstones to cure warts. And it is worth noting that the belief in the power of the gemstone to produce wealth is a deeply felt, almost fanatically held belief.

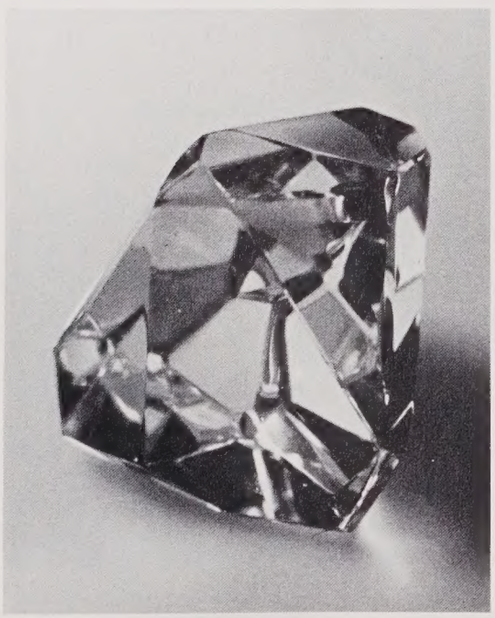
Yet mingled with this symbol of monetary value, there is also another joy—that of color pleasure—which is derived from the intense orange-red of a topaz or the blue-green of an aquamarine. This pleasure to perceive the transformation of light through a gemstone. With the transparent crystals this is seen in the brilliance, scintillation and flash of light, with the translucent stones it is in the surface luster and glowing, luminous color, while with the opaque stones it is often observed in a distinct or unique color pattern.

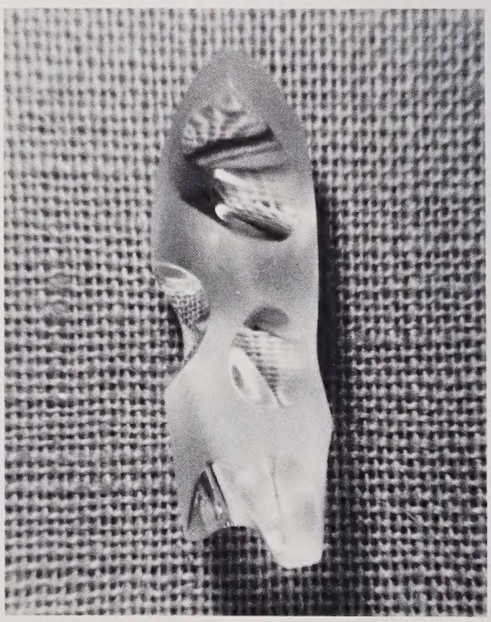
Lapidary was developed to explore these qualities, and through the ages various forms have evolved that exhibit to advantage certain aspects of stones. The cabochon form, which is little more than a shaped lump, shows off dense color quite well. The slab shape provides a good display for the patterns and color collages of agate. The faceted stone, however, allows the optical properties of a crystal to be fully developed. The remarkable ability of the gem crystal to refract light and concentrate it into beams has completely preoccupied the faceter, and the search for new minerals in whiih to explore this quality goes on relentlessly.

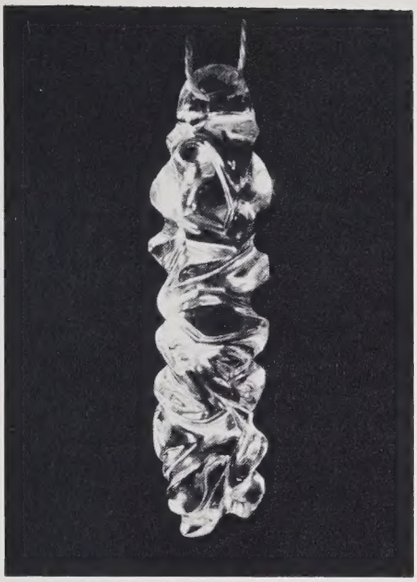
Yet the form of the faceted stone is quite rigid. It consists of no more than the geometrically ordered arrangement of optically flat faces. The variations are endless, but the form is constant. However, light has other qualities, it can move and roll, increase or fade, scatter or concentrate, aspects not possible in this limited form. Other forms are needed and different technical approaches must be developed if the immense potential of this world of light is to be fully realized.

### The Problem of Form

The ways that forms are developed in nature was described by Austrian physicist Erwin Schrodinger as follows: "Starting from a small solid germ, there seems to be two different ways of building up larger and larger associations. One is the comparatively dull way of repeating the same structure in three directions again and again. That is the way followed in a growing crystal. Once the periodicity is established,







there is no definite limit to the size of the aggregate.

"The other way is that of building up a more and more extended aggregate without the dull device of repetition. That is the case of the more complicated organic molecule in which every atom, and every group of atoms, plays an individual role, not entirely equivalent to that of many others [as in the case of a periodic structure]. We might quite properly call that an aperiodic crystal or solid."

The rigid adherence in the lapidary field to the one geometrical form of the faceted stone may well be why the use of stones has fallen out of favor in exhibition jewelry work. Yet this situation is needless. In carving, the lapidary has all options open to him, and the simple organic form itself is perfect for the exploration of the light-refracting qualities of stone. In addition, by carving, the stone can be developed as a fully integrated part of the design with a functional, interdependent relationship to the other materials being used. This requires an entirely different approach, because there is virtually no way a faceted stone can be satisfactorily integrated into a design. No matter what you do, it seems accessory to the design, simply an add-on for color or a spot of bright light. At its worst, as in pavé, the form gives way entirely to the image of bright light, hundreds of light bulbs tightly packed together, plenty of light but no form and no content. However, even the geometric form can be modified quite easily so that movement and growth become part of its effect through combinations and variations which break up the periodic development.

### The Relation of Light to Form

Gemstones offer a wide range of light-handling characteristics. The variation results from the structural differences between species as well as the quality of the color. Brilliance, clarity, density, luster and scintillation all vary between species. This difference can be altered or enhanced by the form. Some forms gather light, holding the eye inside the stone, while others scatter it, throwing the light outward. Stones with high refractive indices can be brought to astonishingly brilliant forms, easily rivaling their faceted counterparts. Also, there is a surprisingly wide variation in surface luster and luminosity. The dense translucent chalcedonies, for example, will achieve a surface luster that can intensify the color glow to a fiery richness. Carvings can be designed specifically to take advantage of these qualities. Both moonstone and opal, even when polished to perfection, still develop a soft, pastel quality, while some pink quartzes have such a sleepy look they almost appear frosted.

A faceted stone is designed so the light will reflect off inner flat surfaces at an angle that focuses it back through the table of the stone. This concentrates the light and gives the quality of brilliance. In carving, the opposite can be achieved by the use of concave surfaces. These present a multitude of curved, convex inner surfaces. The light striking these surfaces is scattered. Since the surfaces are curved, no matter how the carving is turned they constantly reflect and scatter light, producing an intense scintillation. With cleverly designed carving, these surfaces can be made to oppose each other so that the light is reflected back and forth within the carving. Thus you have a transparent carving that you cannot see through. The light seems to be tumbling around inside in constant motion.

An example of this effect is a cube with all six faces dished and all 12 edges flattened. Once the light enters the carving it takes a while for it to find a way out. This produces a kaleidoscopic effect, as the intensity of the light varies as it travels from one surface to another. If a light citrine, smoky quartz or light amethyst is used, an additional dimension of color density can be achieved. There is a constant interplay of color hues from dark to light, fading and deepening as the carving is rotated and the light moves about.

The external shape can also be used to build up complex light forms. A series of discs connected by thin necks will result in layers of color. Where the stone is thick the color is dense, while through the neck it washes out. With clear material, such as white topaz, the edges of the discs produce an intense brilliance which fades out completely in the neck portions. Lines of light can be developed in linear forms by carving ridges parallel to each other. Once again, the greater density of color where the stone is thick is contrasted by the thinner areas where the color washes out. Planes of light thus produced can be designed to bisect each other, giving even more complex patterns. Complex architectural designs integrating both metal and stone can be developed, where the stone in one place will act like a glass window while elsewhere it becomes a light generator. But in all

**Opposite left:** *Facetlike Yag,* ½" d. By working this stone hand-held it is possible to place the flat surfaces in a much more irregular and complex pattern than if it were faceted **Opposite center:** *Carnelian,* 1¾x1⅜". The lustrous surface of this stone produces a rich glowing orange-red color that shifts from light to dark as the thickness of the material varies **Opposite right:** *Optical Quartz,* 1x⅜". The frosting on the convex surfaces enhances the effect of brilliance in the polished grooves. This can be done with broad surfaces as well as with delicate traceries **Above left:** *Citrine Pendant,* 2½x⅝". This stone is cut in a long twisting form with intersecting and opposed grooving. The light escapes from the form along the edges as bright, hot lines **Above center:** *Citrine Pendant Carving,* 2½x2". In this stone the irregularity of the internal surfaces distorts the reflective patterns giving light a sense of motion and a water flowing quality **Above right:** Quartz Cube, ⅝" square. The opposing convex surfaces make it impossible to see through this transparent stone

cases, the gemstone must be carved so that its design fits perfectly into the whole.

### Diffused Light and Direct Light

A great range of possibilities is opened up when the brilliance that the gemstone is capable of is used as the central design element. Light, itself, can then become the subject of the design. Using the stone as a medium, light can be made to move, to ripple, to travel as bright spots or to provide a watery, flowing quality. Some stones will even provide two o three distinct colors depending on how the stone is carved. Thus the stone becomes a functional element of the jewelry design, providing a source of light that is an integral part of the concept rather than merely an added highlight.

This use of carved stones as a source of light need not be restricted to jewelry. Although larger metalwork has traditionally employed other materials, such as wood, bone and ceramic, gemstones, because of the difficulty in working them, have seldom achieved widespread acceptance. Yet now, transparent stone can even be carved for inlay, producing a sensuous, twisting, watery effect, used as mosaics, or as carved extensions of the metal. Almost all the uses that other materials are put to also applies to stone. And stone is the only one which is capable of providing an intense display of light.

### Color and Tactile Qualities

With any object, the tactile aspect is as important as the visual. This can be expressed in light qualities as well as in the shape itself. The two reinforce each other. And, again, it is only by carving the stone that this tactile aspect can be fully developed. It takes experienced fingers to detect the difference between a faceted red opal and a faceted red garnet. Yet there are innate differences, such as heft, heat dispersion and smoothness. These can be made even more apparent in relation to color. A topaz carving feels and looks cold, while one in aquamarine will have a much warmer quality. The colors of stone surprisingly correspond to their tactile qualities. The brilliant yellow of the sunstone [feldspar group] is always soft, not pastel, as with the opal, but definitely different from the cold brilliance of the topaz or sapphire yellows.

In order to protect the softer stones from chipping and abrasion, edges and corners are removed. This tends to soften the light further by diffusing it, and where the material is thick the color will be dense but not cold. For example, transparent fluorite is wonderfully clear but lacks brilliance. The stone can be carved to emphasize the clarity and richness of its color so that the softness of the material becomes an asset and the clarity of the deep color becomes capable of producing its own remarkable sense of brilliance. As a faceted stone, fluorite has a rather empty quality.

All of the quartzes can be frosted. If this surface is perfectly smoothed before frosting, the result will be a satiny, delicate softness. Commercial glass makers have thoroughly exploited this quality in glass. In carving, frosting can best be utilized as a means of defining shape by contrasting areas of brilliance with areas of softness, intermixed with textural surfaces on the metal. This emphasizes the possible variations of light quality, with or without color, simply by varying the surface. In a well-defined area the use of coarse sandblasting can achieve a remarkable effect, a chunky almost natural quality. The technique of texturing on stone surfaces is more limited than on metal, but stone texturing does exploit light qualities much more effectively.

### The Discipline of Lalique

Even as recently as the late 19th–early 20th centuries, during the time of René Lalique, stone carving was a technically difficult problem and this helped discourage its use. Technical problems impeded the expansion of the craft. The metalsmith and jewelry maker turned to enamel and glass for color and seldom paid serious attention to the possibilities of refracted light. Lalique used stone extensively in his earlier work. His insistence on incorporating it directly into the design forced him to do the carving himself. It was a slow process in those days. Not surprisingly he turned later to glass, which could be cast. We no longer experience these technical problems. Stone can be carved as easily as metal or plastic. For that matter, in terms of time and process, enameling has probably become the most forbidding technique.

In Lalique's work, the stone appears to grow out of the metal. By muting the colors through surface treatment, he made metal and stone tend to fuse. He sought that ambiguous, misty quality which so intrigued the Art Nouveau movement. Attaining this quality simplified carving problems, as the forms tended toward low relief with rounded corners and seldom developed any sharp detail. Primarily he used chalcedonies with pale colors. This material is already translucent and the light is highly diffused. By muting the shapes, that is by rounding the edges and keeping the relief relatively flat, the effect of vagueness is emphasized. The soft quality of the chalcedony colors furthered this end. When Lalique shifted to using glass, he left the cast surface as it was, or directly polished over it without attempting any prior smoothing. With glass (as well as with the quartzes) polishing over a coarsely ground surface produces a wettish, or what is called a greasy, luster. Part of the light will penetrate but most of it is diffused. This can be seen in his bracelet containing glass owls, reproduced in the Fall, 1980 issue of *Metalsmith* magazine (page 9). Leaving the glass with a rough cast surface resulted in a frosted effect, where the light is totally scattered and the color comes through as a glowing quality.

Lalique's mastery of this format is impressive, and it is important to note how skillfully his materials were integrated. There are several metalsmiths and jewelers today who achieve this in their work, using different techniques and materials, such as plastic, but it is seldom seen using gemstones.

### Light and the Contemporary World

Light is a major preoccupation of our time. So much of our entertainment involves light, and its use in the production of necessities is taken for granted. Although it has not been totally neglected in the crafts, I do not think light has been adequately explored. The intrigue and fascination with light should be more evident in the objects we make. For the jeweler the gemstone is right at hand, easily carved and readymade to act as a light center. Lapidary can readily be absorbed into the jewelry process. The equipment needed is relatively simple and the techniques involved are not that difficult to master.

In the second part of this series, I shall review the principal techniques of carving, the tools needed, how to make some of them and the relation of tools to form. In the third article I shall discuss the popular species of stones, the forms they are most suited to and the problems most likely to be encountered while working them.

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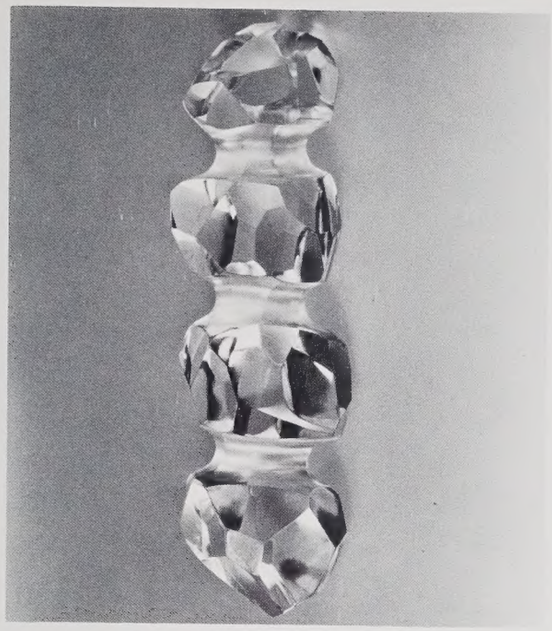
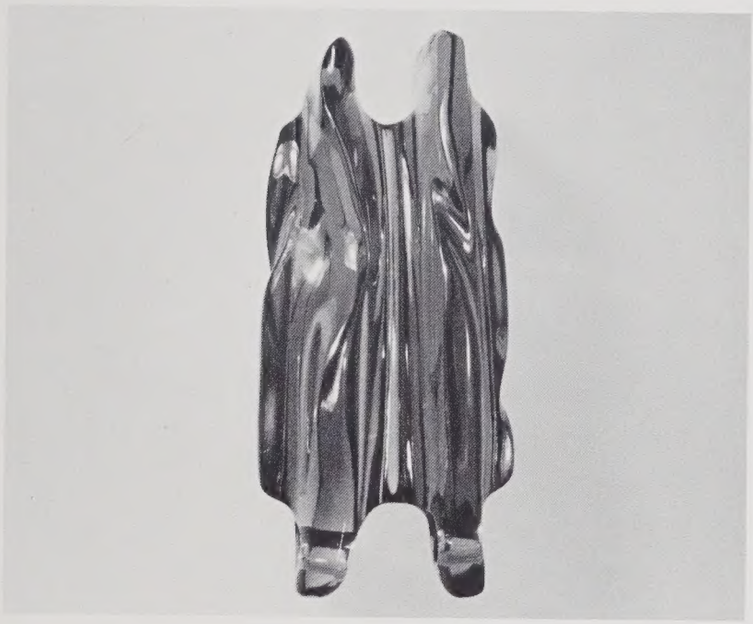
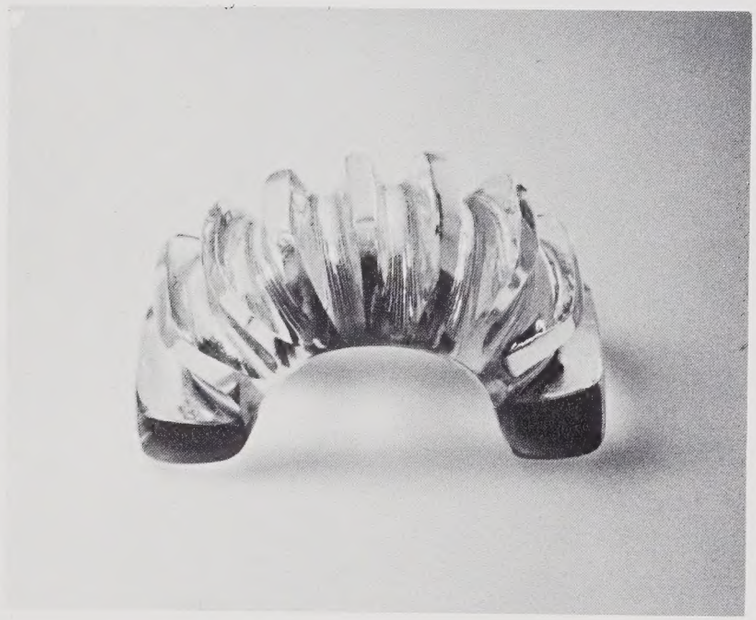
*Henry Hunt* has been a self-employed lapidary for the past 20 years. The photographs in this article were reprinted from his recently published book: *Lapidary Carving For Creative Jewelry,* which can be obtained from The Desert Press, Box K, Bouse, Arizona 85325 for $12.95 pp.

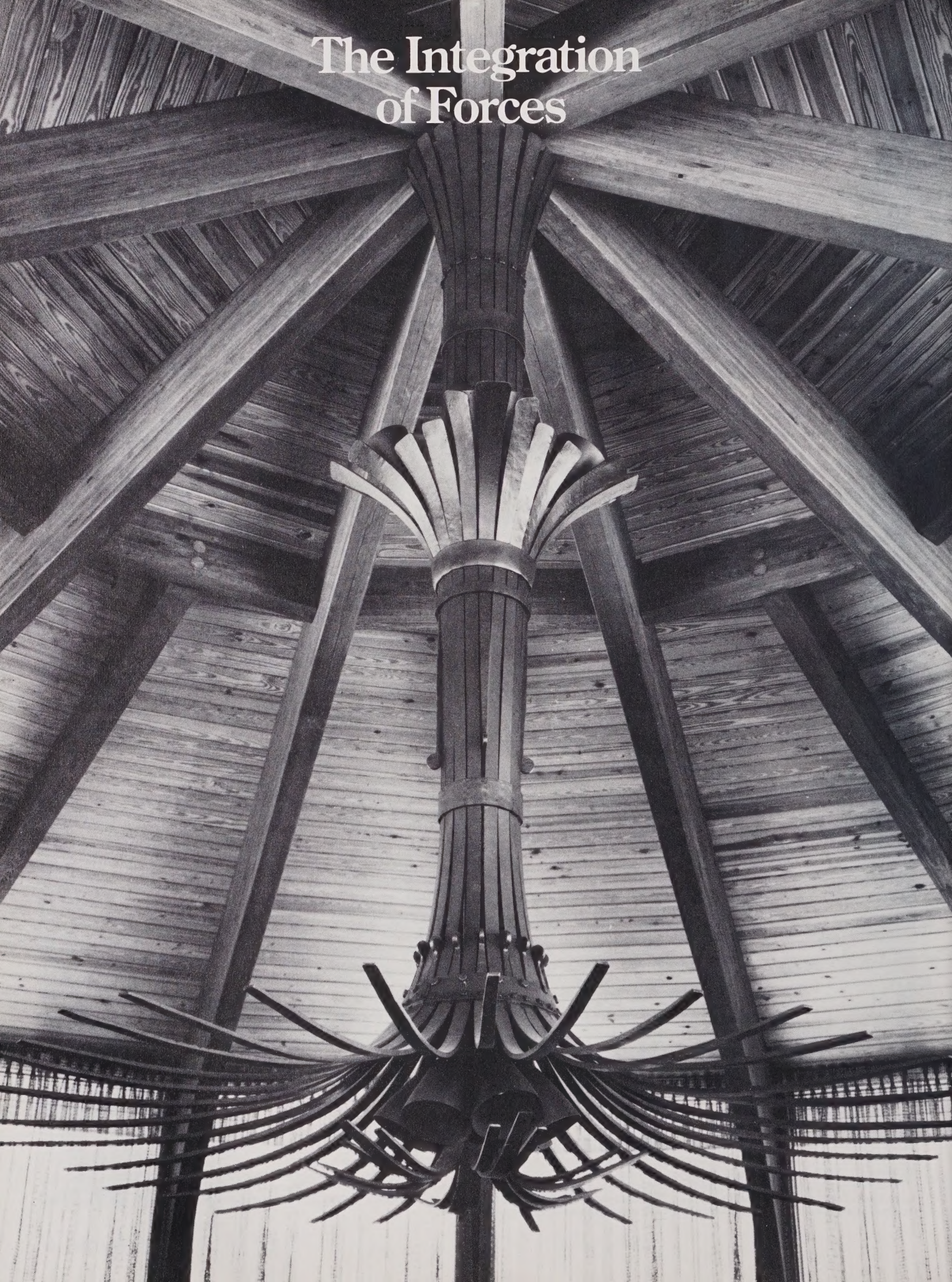






**Top left:** *White Quartz Pendant Carving,* 1½"x½". In this stone the internal play of light is strengthened by repeating the irregular geometrical forms. The frosting on the connecting neck blocks the light and completely separates each area **Top right:** Smoky Quartz, 1" d. The color in the thin platform washes out,while around the edges and in the cubes the thickness of the stone produces a striking contrast of dark color **Center left:** *Smoky Quartz Pendant,* 2⅛x⅞". In this stone a linear form is built up from ridges which provide long lines of dark light **Center right:** *Light Smoky Quartz,* ¾x⅜". When highly polished, a layered design like this will flicker with bright flashes as the piece moves **Above left:** *Smoky Quartz,* 1x1". The deep belly of this stone acts as a light reservoir giving dense color at the center which fades along the outer rim **Above center:** *Fluorite,* 1⅛x¾". The extreme clarity of the color in fluorite can be used to produce brilliance by constant variations in the thickness and curvature of the form **Above right:** *White Topaz,* ⅝x½". The use of intersecting grooving to scatter the light in this stone, results in ridges, which alternately flash light and collect it in dark pools as the carving is moved

# The Integration of Forces



# The Metalwork of Albert Paley

by Robert A. Sobieszek

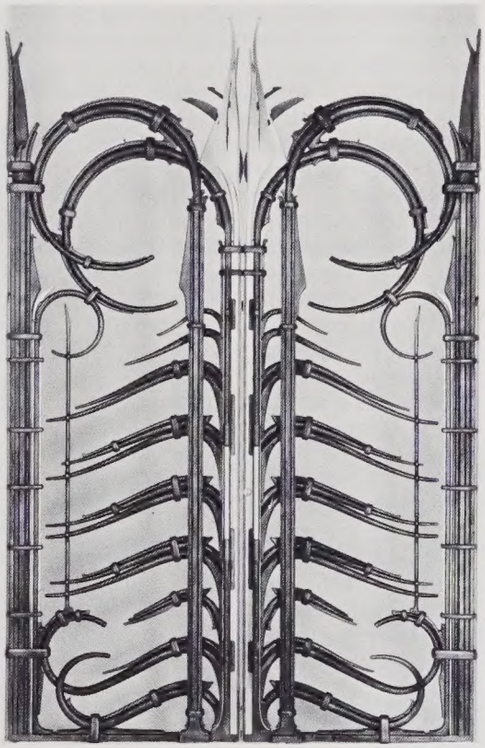
*My work is a means of exploration and the development of form. Rather than having an image in mind and then coercing or informing material into that, usually the imagery or the development of form is through the direct manipulation and involvement with structure.*[1]
*Albert Paley*

Contemporary crafts both suffer from and enjoy an often confusing plurality of styles. A single dominant style no longer holds sway over the production of craft objects. During the 1950s, the esthetics of modernism, best seen in the internationalizing of "Danish Modern," affected and, for some, even infected nearly all the crafts. Following the American craft renaissance of the 1960s, streamline modern, funk, historicism, organicism, folklorism and even ad-hocism have become independently viable styles. Rather than compete against one another for cultural hegemony, these craft styles reside unperturbed in their respective camps, along with their mutually exclusive followers.

Craft styles cannot maintain their independence, however, without mutually political dialogue. The craft renaissance of the sixties can be understood in part as an escape from modernity and technology and in part as a striving towards new meanings and new boundaries of the art of craft. On the one hand, the styles of California soft-form, funk and Earth-momism emphasize the individuating hand of the artist, natural materials, coy literary humor and the syntax of ruralism as the ruling tradition of crafts. On the other hand, minimalism and analytic structuralism in contemporary crafts deny the artist's "hand" and stress primarily industrial materials—producing an abstraction often bordering on a new "brutalism" of machine forms and a decidedly urban grammar. While the past decade has witnessed the application of a variety of new forms and materials, it has also seen the rebirth of some old antagonisms. Opposition between machine-made and hand-made, between futurism and historicism and between affluent elitism and social responsibility is as apparent now as in William Morris's time.

These issues have precipitated a much more fundamental dichotomy in the crafts. If, on the one hand, the craftman adopts the stance of modernism for its own sake, to the exclusion of tradition or history, then there is the constant need to create new forms and new meanings with each work. In short, modernism carries with it the necessity of reinventing the work each time, often resulting in vacuously novel forms or meaningless innovation. On the other hand, if the craftsman rejects modernism for perennial folklorism or specific historicism, then he runs the risk of indulging in empty revivalism. The work's shallowness is manifested by a quaint and precious link to the present at best, or a denial of the present at worst. To a large degree contemporary crafts are caught between a Scylla and Charybdis of two romanticisms. A romanticism of perfect "invention," isolated and completely independent of tradition, is neatly countered by an equally problematic romanticism of reinventing the superficialities of the past, of escapism and security in repetition.

Albert Paley's metalwork compels an engagement with these sorts of issues. His work, whether the earlier jewelry forms or the more recent and monumental steel works, invites questions about the nature of crafts today, about the place of history in the work of the present and about the moral imperatives each craftsman faces. He is a romantic and accepts the heritage and traditions of crafts. At the same time, he presumes the balanced relationship his work has with today's world.



**Opposite:** *Lighting Fixture*, Columbia Banking, Gates, NY. Forged and fabricated mild steel, painted surface, 7½x10½', 1977 **Above:** *Albany Gates*, Senate Chamber, New York State Capitol Building, Albany, NY. Forged and fabricated mild steel, brass and bronze, 14½x12', 1980

Paley's work is an art product whose rationale is as much the solution to contemporary craft problems as it is the result of an individualized set of physical and mental challenges. Paley was a jewelry maker; he is a metalsmith. Over the past decade or so his products have shifted purpose and scale, but the basic principles of his art have remained constant. He is interested in the investigation of form, although not for its own sake. Strictly formal investigations are analytic and cold; for Paley, art demands much more. Whether a brooch or an architectural gate, his forms result from a complex of interrelated processes: the physical making of a thing, the intuitive construct of pure forms, the influence of tradition and the creation of new responses to everyday objects. His objects, for him, are an assault against the anonymity and sterility of much that was and is modern. They are also designed in active discourse with what they confront; the jewelry with the sensuous lines of the human body as well as the bold angularity of the most avant-garde fashions; the steel with both the most high-tech architectural setting or pastoral landscape context.

In terms of simple process, Paley's jewelry and other metalwork are the result of a sensitive and advanced understanding of what metal is capable of. His facility with metal and the often spectacular results are not as important to him, however, as his direct involvement with a progressive calculus of challenges—those material and spiritual challenges that are revealed by solutions to earlier challenges.

Despite the isolation of his studio in Rochester, New York, Paley's works are widely known and have been considerably responsible for the contemporary renaissance of American monumental ironwork. Since 1965, his jewelry and smithing have been in over 150 national and international exhibitions, many of which were one-man shows. His work has been reproduced in numerous crafts publications; he has lectured and conducted workshops throughout this country and abroad and received a number of awards.

Between 1962 and 1969, Paley studied at Tyler School of Art in Philadelphia. Experimenting with various media such as painting, sculpture and weaving, he concluded that the loom was too tedious, paint too innately submissive and the block of marble too open-ended. Working with metal, however, was most suited to his temperament and his need for a material that was physically resistive.

Almost from the start, Paley's work was a response to the then current domination of Danish Modern and its slick, highly stylized and curvalinear simplicity, as in the metalwork of Georg Jensen, the ceramics of Russell Wright or the ubiquitous butterfly chair. In its stead, Paley was suggesting a style that, according to metalworker Gary Griffin was an "organic, raw view of naturalism," a view which substituted an intricate simile of organic growth and containment for the simplified line of a French curve.[2] To the blandness of, say, Jensen's jewelry, Paley offered an almost rococo delight in complexity. The early work was also a reply to the abstract-expressionist excrescences of the "glamour" jewelry popularized during the sixties, such as Arthur King's globularly and texturally amorphic pieces. In their stead Paley posited a tight structure, logically derived forms and a precise ordering of elements within the piece. If his early jewelry is comparable to anyone else's, it might be someone like Arnaldo Pomodoro, whom Paley visited in Milan in 1967 and whose metalwork is characterized by a similar, lucid complexity.

Positive influences on the formation of Paley's work and esthetics also included

Stanley Lechtzin and Philip Fike. Lechtzin, Paley's mentor at Tyler, was most concerned with structural foundations in metalwork, the underlying logic of the piece. Lechtzin was furthermore responsible for bringing Philip Fike's archaeologically accurate "recreations" of Etruscan fibulae to Paley's attention. The idea, inherent in antique fibulae, that the functioning mechanism was integral to the design of the entire piece fascinated Paley. It had bothered him that even in the finest jewelry, a beautiful and exciting fascia or surface would be disharmoniously joined with a cheap, mass-produced finding. In contrast, the form of Fike's fibulae was determined solely by the integration of the clasp with the total look of the object as jewelry. The structurally integrated work of German metalsmiths Frederich Becker and Reinhold Reiling reinforced these ideas and helped lead to Paley's belief in total integration of form, a principle that has shaped his work since. All of Paley's metalwork has evolved from the intent to clearly depict the formal rationale behind a piece, no matter how complex. He feels compelled to show the entire workings of the piece and what he calls its self-reflexional logic and to precisely modulate the form in reference to its context.

The most common criticism of Paley's jewelry during the late sixties and early seventies was that it failed to address the problems of jewelry and instead dealt with purely sculptural issues. The pieces were too complex, too large and they overpowered rather than accented the wearer. For Paley, the jewelry relayed a fascination with various materials—gold, ivory, deldrin, precious stones, copper and so on—and their harmonious playing off of one another. His jewelry was larger than most, but the size was subtly adjusted to human scale. Nowhere was it prescribed that adornment was limited to a point on a lapel or a circle around the neck. Ornament was not simply punctuation; it could be an element in a total body orchestration, balancing and complementing the costume, makeup and physiology of the wearer. It followed logically, that the ornament was not limited likewise to a static point, line or plane. At rest, Paley's often late-baroque pieces are exquisitely crafted scultpures; when worn, the linear elements of a brooch move in interlacing rhythms to the motion of the body; rings act as external metaphors of knuckles and joints when fingers flex and pendants counterpoint the swelling and deflation of the wearer's breathing. Paley's achievement, therefore, was the balance between the integration of function and mechanics and the symbiotic integration of adornment to the total body.

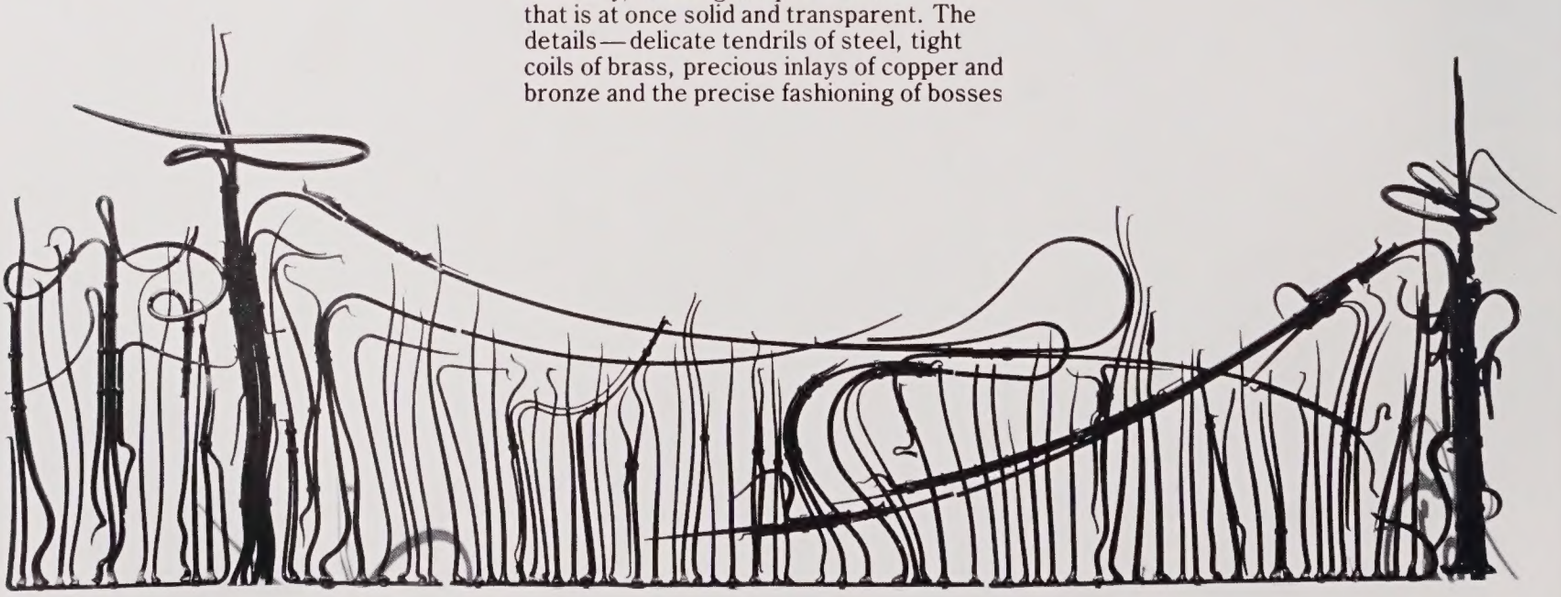
From about 1974 onwards, Paley's jewelry forms became clearer, more direct and architectonic. This change was the result of both a refinement in his sense of jewelry design as well as a progressive involvement with forging processes. Paley had begun to work in large-scale steel around 1969, the year he moved to Rochester. The change in syntax from personal ornamentation to architectural functionalism was motivated by a number of reasons, not least of which were a growing disenfranchisement with the elitism of spectacularly affluent jewelry and a desire to work more directly with the metal. To fabricate his kind of jewelry a certain distance between artist and material was necessary, such as carving wax models, constructing molds, casting and so on. The immediate contact with the material while forging steel was for Paley an important sign of an even greater integration of forces: the human artificer with the noncompliant raw material.

At first, Paley's sense of jewelry design was simply applied to a larger scale and translated into steel. The monumental *Renwick Gallery Gates* in Washington, D.C., of 1974, in their density and disjunction of visual scale and incorporation of various metals, are in essence architectural jewelry. Unlike his small-scale jewelry, however, the Renwick gates display a new emphasis on the material vocabularies of bunching, banding, curving, compression and interpenetration. What strikes one first about these gates is the opulence of material and form, which borders on overstatement. From a central stalk of thickly bunched steel rods, intersperced with elements of copper, brass and bronze, the gates blossom, meandering throughout the frame with vinelike sinuosity, foliating the portal with a screen that is at once solid and transparent. The details—delicate tendrils of steel, tight coils of brass, precious inlays of copper and bronze and the precise fashioning of bosses and bolts—all serve to contradict the gate's apparent massiveness and nearly three-quarter-ton weight.

Only rarely, as in his 1974 *Tabernacle,* has Paley attempted a literal representation of nature and infrequently has he interrelated broad planal areas with the sensuousness of line, as in his *Sculptural Study* of 1976. This small piece is, however, a pattern model for his formal investigations: delicacy of thin, meandering pieces encircling a clustered stalk of metal; upward reaching swirls which seem "illogical" but define an extended space out of their surroundings; softened claylike bases for the linear vertical units; and repeated, apparent violations of the steel's materiality. Metal bands attach themselves to and through the steel plates as if the steel were stretchable, permeable, easily penetrated and pliable, instead of rigid and dense.

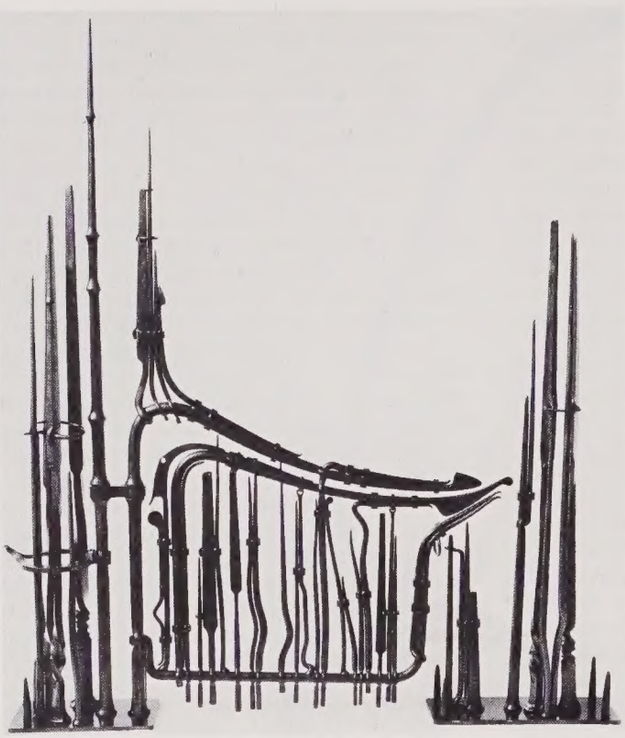
Paley sees steel as submissive while at the same time resistive; it is a material that "easily" accommodates itself to intuitive and free forming. Steel, forged steel, as Paley uses it, becomes a supple, fluid and loose substance, spanning great distances with surprisingly languous ease, flowing through and comfortably interweaving itself. The ease with which Paley works his steel refers back to certain of his simpler pieces of jewelry where the silver, cast gold and thin elements could predictably form casual, sensuous shapes. The principal difference, however, is that in the more monumental pieces, these casual forms are in sensitive balance with the requirements of architectural structure, a structure which must support the piece's often tremendous weight.

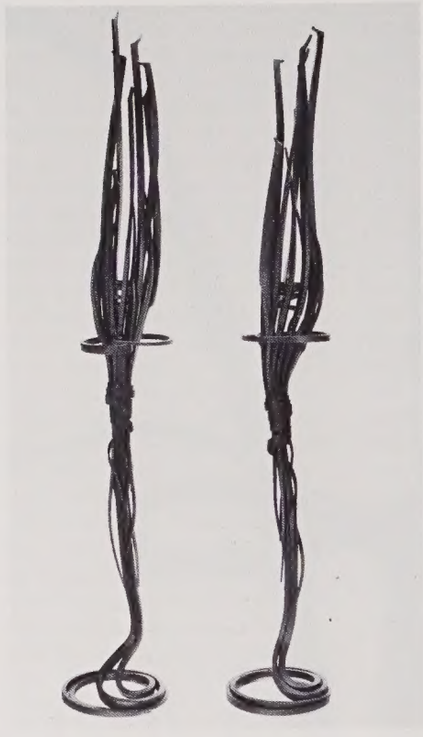
In the past few years, Paley's large metal works have become simpler, more concise expressions of his physical participation with the gestures and vocabulary of steel. The simplification of form that took place parallelled what occurred in the jewelry; instead of material exuberance and the filling of a frame or object, we are confronted with a joyful open gesturing. Smaller objects, like tables, lecterns, chandeliers and torchères

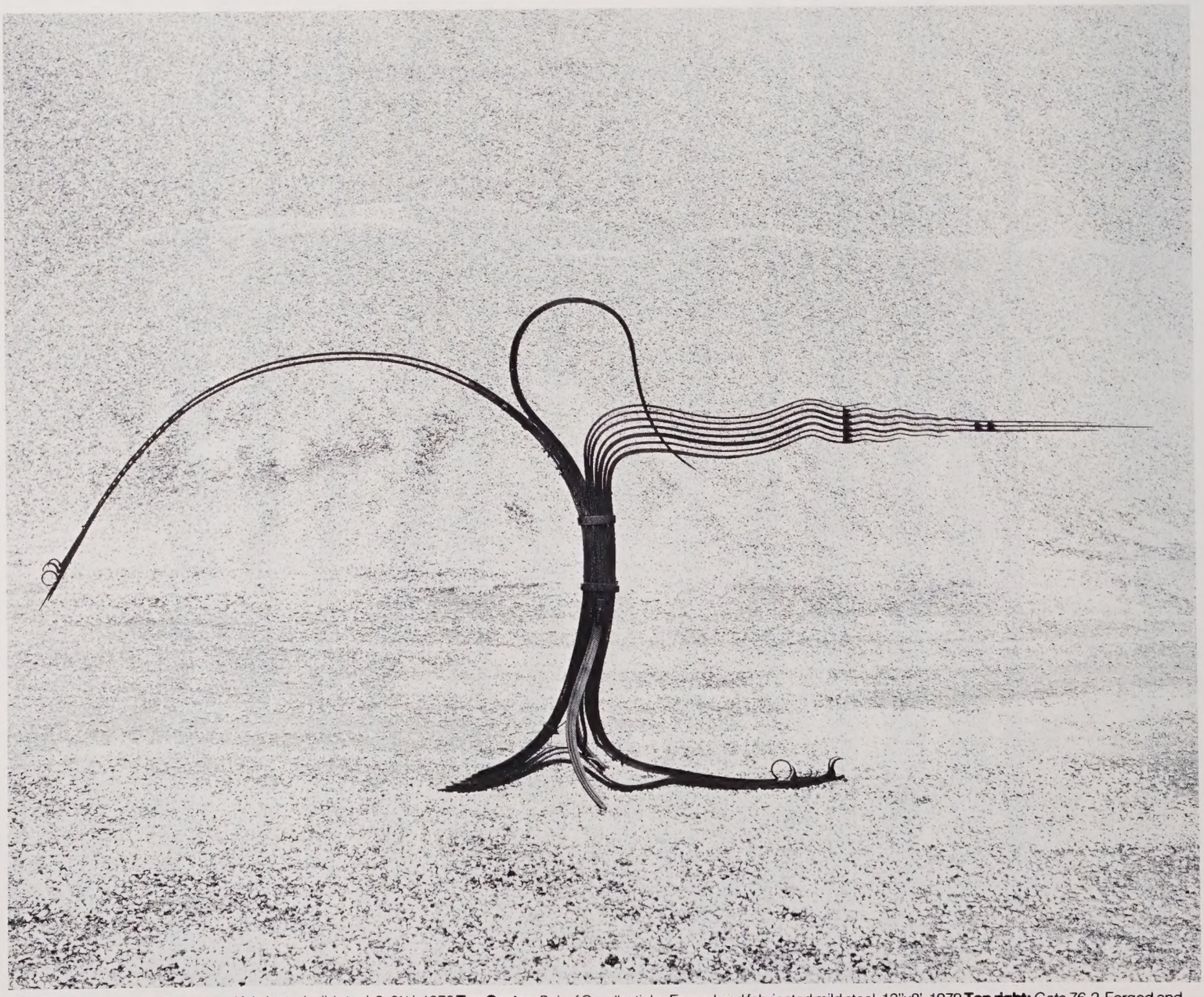


*Wrought Iron Fence,* (37' section) Sculptural Court Enclosure, Hunter Museum of Art, Chattanooga, TN. Forged and fabricated mild steel with painted finish, made in three separate sections, total length 87', maximum height 11', 1975

*Gate 76-1.* Forged and fabricated mild steel, 8x4½', 1976







**Top left:** *Garden Gate.* Forged and fabricated mild steel, 9x9½', 1976 **Top Center:** *Pair of Candlesticks.* Forged and fabricated mild steel. 13"x8', 1979 **Top right:** *Gate 76-2.* Forged and fabricated mild steel, 3½x8', 1976 **Above:** *Sculpture 101.* Forged and fabricated mild steel and brass, 16½x10', 1972

continue to emphasize the central stalk, which supports the focal blossom. Even in the highly complex and dense *Fireplace Hood* for the Gannett Newspaper Headquarters in Rochester, of 1977, and in the three monumental gates for the Albany State Capital Building, there is a clarity and coherence of gestural expression, a sweeping movement rather than a framed containment.

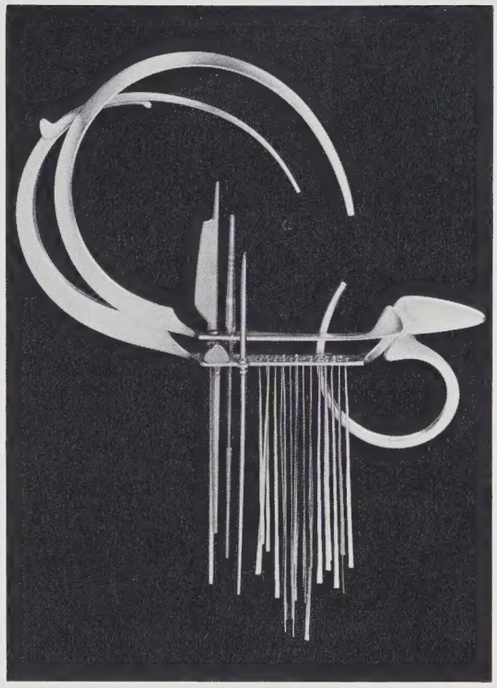
In 1975, Paley received a commission for his largest work to date: the forged and fabricated steel *Fence* for the Hunter Museum of Art in Chattanooga, Tennessee, measuring 121 feet in two sections. The most spectacular aspect of this fence is the willful abandon of predictable structural appearance. The lineaments ramble, swirl in grand gesticulation, swoop and flow playfully. Lengthy horizontal units are only barely integrated with the reedlike uprights rhythmically choreographed across the base. The Hunter fence is, at first glance, seemingly more a sketch or calligraphic design than a rigid metal construction. It is as if the baroque heaviness and massiveness of the Renwick piece had been replaced by the sinuous elegance and lightness of the rococo. Steel has seldom been as broadly gestural, as fluid and as malleable in such a grand scale, so loose and utterly without the normally required frame.

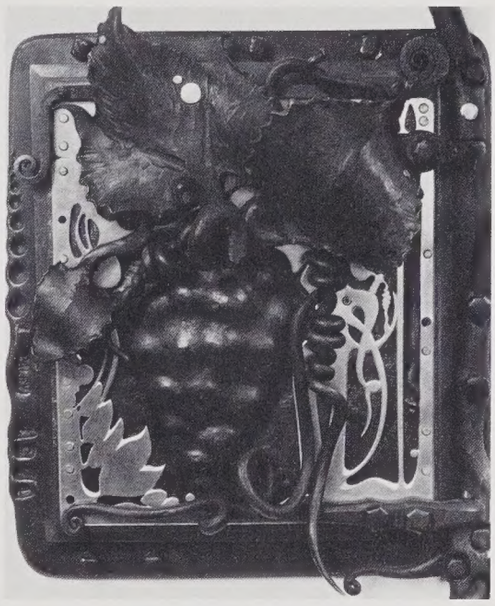
Some smaller pieces demonstrate the evolving style of Paley's work. In his *Garden Gate, 76-1* a residual frame is evident, but its constructional necessity is brought into question by the tied-off, whiplashed finial. *Garden Gate 76-2* subordinates a virtual frame within its center area, with the main outline and thrust of the gate composed simply of a thesaurus of forged and shaped vertical steel elements. In the more recent series of plant stands, beginning in 1979, the metal is twisted, knotted, stretched, reversed upon itself and coiled.

These forms are the spontaneous result of the brute control of the forger's confrontation with the taffylike substance of heated steel. Steel is rigid and forceful, but here it appears fleshlike; steel is resistive and not easily formed, here it has the look of casually molded clay; steel carries with it the associations of straight or cubic stasis, in Paley's plant stands it approaches supple fluidity. Paley's metalwork has always been sensual; now it seems erotic: its forms are soft and compliant, its surfaces are taut and even creased in places, like stretch marks on skin, and its posture is one of erect strength and extension.

Paley's art is romantic, but not solely on an evocative level. His rejection of what he sensed as the sterility of modernism in metalwork and his concern with the encroachment of machine productivity in the crafts are the obverse of his faith in humanism and the personal integration of art. From the maker through the process of making and including the finished work and its functional context, this idea of a total work of art is the reflection of a modified historicism, suggesting a parallel with the esthetics of the International Arts and Crafts Movements of the last century or even the early folkloristic stage of the Bauhaus in this century.

The stylistic similarities between Paley's work and that of the Art Nouveau, Jugendstil or Sezessionsstil is apparent but only superficial. At one point Paley collected the graphic art of Alphonse Mucha, struck medallions by Jules-César Champlain and other Art Nouveau French medallists, turn-of-the-century ornamental tiles and ceramics as well as decorative metalwork of the same period. He is passionate about the delicate, sensuous qualities of certain vines, plant forms and flowers; he even cultivated irises, one of the most beloved flowers of the *fin-de-siècle*. Yet, while the influence and shared sensibilities are real and active, his work is scarcely a restatement of past art. Formally, many analogies occur, such as sinuous linearity, delicate tendril-like organicism and, periodically, ambiguities of form and definition. His *Garden Gate, 76-2* is strongly reminiscent of a kind of Mackintoshian clustering and perpendicularity, but even here the kind of interpenetrating banding and the massive uprights with their soft, liquescent feet are aspects seldom if ever found in the iron constructions by the 19th century Scottish architect. That Paley has been influenced by these earlier styles is obvious, but his has been a use of the past, much like that of the French Second Empire designer and metalworker, Constant Sévin, who said, "I search constantly and if I borrow the styles of the past... I always interpret them."[3]





**Top:** *Brooch 77-2*, forged and fabricated sterling silver, 14k yellow gold and copper, 7½x7½" **Above:** *Tabernacle* (detail of front section), forged, fabricated and chased mild steel with brass, entire piece 18x35x10"; front section 11½x8", 1974

An esthetic tradition that is far broader and far less historically limited than that of the Art Nouveau style informs Paley's art. When von Schelling, writing in 1807, said that art goes beyond mere form, that "it is essence, the universal, the look and expression of the indwelling spirit of nature," he stated a faith and belief in organicism—the analogy between the creation of art and of life processes and the work of art as a sign of life.[4] Synthesized organic growth, abstracted natural forms and associative references to nature through pure design became the foundation stones to much of modern art and decorative design. Although organic associations may have drastically diminished since the 1920s, especially in the wake of the International Style, the principles of generation and "natural" processes are still locatable.

Paley's romanticism emphasizes the humanity of craftsman and artist. He abhors the uniformity of the late modern environment, the sameness of materials, the repetition of empty forms and icons and the vacuity of machine-fabricated objects. If the investment of value in the activity of human craft and hand manufacture is a bit reactionary, it is still mandatory for the examination of what metal can do in certain contexts. If Paley is passionate about irises, he is even more emotionally absorbed by the character and qualities of pure metal, most notably steel for its linear and extruded capabilities. His interest lies not in simplistic revivalism but in an integration of craft and process, of process and idea and of the idea of the work of craft within a contemporary art context. Most of all, Paley's work has been the creation of a unique "quality of line." In its organic sensuality, the line is basically humanistic; in its lucid rationality it is structural; and as the product of the maker's direct contact with the metal, it is a trace of the artist's mental and spiritual conception of craft and art.

*Notes*

1. Albert Paley, cited in "The Works and Words from Two Metal Artists," *Newporter (Newsport Newreporter)*, I, 12 (July 16-30, 1976), p.23

2. Gary Griffin, in conversation, January 18, 1980

3. Cited in Philadelphia Museum of Art, *The Second Empire: Art in France under Napoleon III*, Philadelphia, 1978, p.124

4. F.W.J. von Schelling, *On the Relationship of the Creative Arts to Nature* (1807), cited in Lorenz Eitner, *Neoclassicism and Romanticism: 1750–1850*, II, Englewood Cliffs, 1970, p.47

This article first appeared in a slightly different form as the introduction to the exhibition catalog *The Metalwork of Albert Paley*, published by the John Michael Kohler Arts Center, Sheboygan, WI, 1980; it has been re-edited and brought up to date.

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# Photography for Metalsmiths

*Part One:*
What's Wrong with This Picture?
by Leslie F. Brown

*This is the first in a series of articles aimed at helping the metalsmith to meet the challenges of photographing small, reflective work. This and the articles to follow amount to a mini-course in photography as it applies to the needs of the metalsmith. Efforts have been made to keep the technical vocabulary at a minimum and the overall approach one of direct, straightforward instruction. For those unfamiliar with the terms used, a technical appendix is included at the end of the article. All photographs accompanying this article are by the author.*

Perhaps the most difficult part in the creation of an art object comes after the piece itself is finished. Despite excuses and procrastination the artist is ultimately faced with the fact that the work must be photographed. Often the photograph, slide or print itself becomes the finished work and is seen by the largest audience. Yet, all too prevalent among artists today is the "point and shoot" school of photography, which deprives them of meaningful documentation and, perhaps, opportunity. Slide-juried shows rely on the quality of the slide as much or more than the quality of the work. Bad photographs don't get chosen for publication, and that page of slides sent to a prospective employer, well, in the land of "packaging is everything," it had better be good.

This article deals with photo basics: characteristics of a quality photograph and how to attain them, what films to use, how to use the camera's meter and what equipment is necessary. The next article will deal specifically with the lighting and photographing of metal objects.

Two basic assumptions have been made: first, that the reader is interested in photography as a tool and not a vocation. To this end, as noted above, this article is long on practice but not so long on principle; second, that the reader is using or intends to use a 35mm, internally metered, single lens reflex camera with a completely manual control capability.

Outside of the initial investment in a camera and tripod, the production of quality slides and prints is not a hardware (or capital) intensive proposition. A few pieces of basic equipment, an understanding of the methods and concepts discussed in these articles and some care and patience in setting up work to be photographed are the essentials.

## Characteristics of Quality Photographs

Some of the problems common to documentation of metalwork have been overemphasized in the photograph with which this article opens. Still, these defects, as well as several others, are common headaches for the craftsman. The illustration at right demonstrates what proper exposure and lighting can do in the visual description of a piece.

**Opposite:** This 13cm diameter sterling silver bowl on a constructed base is lost in confusing reflections and flat lighting. The negative was made with a 55mm macro lens on Tri-X film, specially rated at ASA 125 and developed in Microdol X for 11 minutes. Can you find the photographer in this picture? **Above:** Reflection control and overhead lighting bounced off white reflectors produces accurate and clear detail as well as good modeling in this photograph of a 57mm tall liqueur cup. The negative was made with a 55mm macro lens on Tri-X, specially rated at ASA 125 and developed in Microdol X for 11 minutes

This section lists nine characteristics necessary for a high-quality photograph. Each entry includes an abbreviated description and some common errors. The first five points are of a technical nature, meaning they are all functions of the photographic process—focusing, grain control and so on. These five are discussed in greater detail following the initial reference list. The last four are of a compositional nature, dealing with what goes on in front of the camera—lighting, reflection control and so on. Although listed here for the sake of completeness, these four will be dealt with in the next article.

As noted above, the terminology used here is fairly restricted. Six terms from the photography lexicon, however, are indispensable. These are: f-stop (or stop), shutter speed, depth of field, ASA, film speed and grain. Explanations of these terms can be found in the Appendix.

Two further terms which are used in a specific manner for the purposes of this article are *subject* and *scene*. *Subject* always refers to the object being photographed—silver bowl, brass sculpture, whatever. *Scene,* on the other hand, refers to everything the camera's viewfinder takes in—subject *and* background.

**1.** Sharp Focus: produced by careful initial focus and use of smallest possible lens aperture (opening).
Common Errors: entire subject or portions of it out of focus.
**2.** Good Contrast Range: initially dependent on proper exposure, although processing, and in the case of negative film, printing, can have great bearing.
Common Errors: under or over exposure in negative or slide; black-and-white print has too little or too much contrast.
**3.** Minimum Grain: controlled primarily through film choice (high-speed films are grainier) but can be affected by processing techniques.
Common Error: obtrusive grain destroying detail.
**4.** Clean Prints and Slides: result of care in processing, printing and storage.
Common Errors: white dust spots and chemical stains on prints; surface grit, scratches and fingerprints on negatives and slides.
**5.** Color Accuracy—Exposure Related: result of proper exposure and strict avoidance of colored light reflected off walls or objects near subject.
Common Errors: film under or over exposed; color cast from ambient light.
**6.** Color Accuracy—Illumination Related: primarily dependent on using films and light sources balanced for each other; also dependent on colored light reflected off walls or objects near subject.
Common Errors: film and light source not balanced for each other; color cast from ambient light.
**7.** Descriptive and Esthetic Composition: result of carefully examining subject and scene *through the viewfinder.*
Common Errors: frame tilted; subject viewed from awkward angle; distracting material, shadows, or reflections in foreground and/or background; subject framed too tightly; subject too small in scene.
**8.** Subject Properly Illuminated: result of positioning light source to achieve good modeling and separation from background.
Common Errors: lighting too flat, no modeling; poor angle of illumination causing confusing shadow and light patterns.
**9.** Absence of Distracting Reflections: obtained by choosing or constructing setting appropriate to reflective qualities of subject.
Common Errors: destruction of subject's contours and details by uncontrolled reflections; environment, photographer and camera reflected in high-polish piece.
The chances of a focusing error (characteristic 1) increase dramatically as the distance between camera and subject lessens. Errors due to initial focusing can be minimized by turning the focus ring back and forth several times before settling on the final focus. This educates the eye to the sharpest point.

A second major problem, especially in extreme closeups, is the occurrence of a subject partially out of focus—either front (point closest to camera), back, or both. This is due to shallow depth of field. In these situations, always use the lens' smallest aperture. The lens aperture on 35mm cameras is always at its greatest

diameter in order to give the brightest image for focusing. At the moment the shutter release is pushed, the aperture closes down to the pre-set position. Most cameras, however have a button or trigger which can be used to close the aperture down prior to the actual exposure. Although the image may be very dim, the depth of field will be apparent.

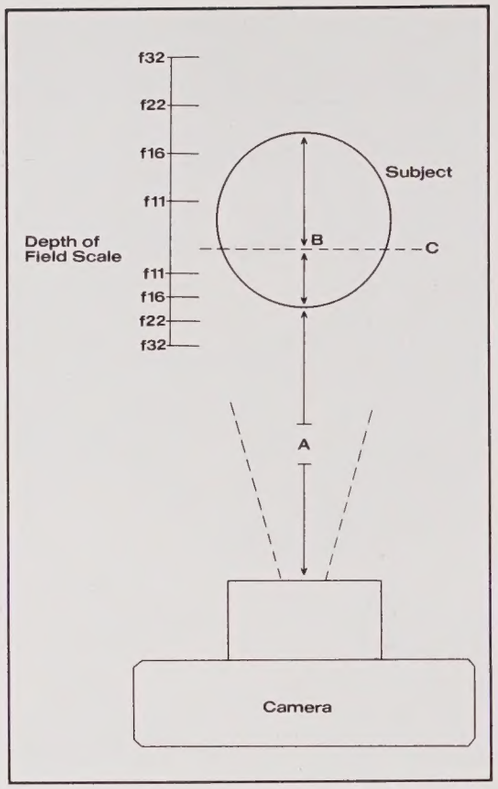
To insure that the subject falls within the parameters of the available depth of field, focus approximately one-third of the way into the subject on the camera/subject axis (see diagram). This is effective because depth of field is greater behind the actual point of focus than in front.

Occasionally the angle at which a subject is oriented prohibits sharp focus from front to back—the depth of field just won't cover the depth of the subject. Either reorient the subject so it is "shallower" in depth along the camera/subject axis or allow the point furthest from the camera to lose sharpness. *Never allow the forward portions of the subject to go out of focus.* Human perception accepts as natural the gradual loss of sharpness as objects recede into the distance. The opposite situation, however, disturbs both eye and mind.

While a good contrast range (characteristic 2) is dependent on white whites and black blacks, it is necessary to have good rendering of detail in the darker and lighter areas as well as a full range of tones between the two extremes. While lighting is a critical part of good contrast, exposure and processing are equally critical. Be sure that the camera meter is calibrated to the proper ASA for the film being used (consult the camera manual or the person you borrowed the camera from to find out how to do this). If slides and negatives are consistently underexposed, try decreasing the ASA rating by half. For consistent overexposure double it. Seemingly erratic exposures may result from believing the meter when objects are photographed against a uniform background. This is due to the meter being "fooled" by the unvarying background tonality. A standard metering method, such as the one discussed later in this article, can provide more consistent —and correct—exposures. Erratic exposures may also result from weak camera batteries and/or a meter in need of repair.

For the do-it-yourselfer, problems could lie in processing techniques. Be sure time, temperatures and agitation are correct. Assuming proper exposure and development, contrast problems in the black-and-white print might be due to the wrong grade paper. Use a harder paper for greater contrast and a softer one for less contrast. Be sure printing chemicals are fresh and used at 68° F.

The extent to which grain is apparent (characteristic 3) is usually a function of film speed—the faster the film the greater the grain size. The problem can




A: camera-to-subject distance. B: point of focus one-third into subject depth. C: plan of focus. Scale illustrates depth-of-field principle. For any given f-stop, the focus will be good between that stop's two positions on the scale. The actual range of focus for any given f-stop depends on the camera-to-subject distance—the closer the camera to the subject, the shallower the depth of field

be accentuated, however, by "pushing" a film. This is a popular technique of increasing the ASA of a film and then compensating for the resulting underexposure by overdeveloping. The result is a photograph with poor shadow detail and very heavy grain. Also a culprit in increased grain size is improper development, which would include extended development time, radical fluctuation in temperatures of chemicals and washes and use of an inappropriate developer. Always check the data sheet included with each roll of film for development instructions.

Clean negatives, prints and slides (characteristic 4) are the products of care in processing, printing and storage. Everything—negs, prints and slides should be kept in a cool, dry place when not being used. Store negs singly in glassine neg sleeves. Never use the clear plastic neg file pages. The static these pages develop quickly attracts particles of dust and dirt which will scratch negatives. To keep slides pristine, they should be stored in hard plastic slide boxes or metal storage cases. Again, for long-term protection, avoid the plastic slide pages.

Prior to printing always clean negatives with a soft brush and/or canned air. Exercise extreme care in both handling and cleaning negatives in order to avoid scratches, which invariably print white and bright.

A good policy for slide protection is to keep a master set. These are removed from storage only to make duplicates for circulation. It should be pointed out that dupes are never as good as an original in either sharpness or color accuracy. For this reason it is often best to make several original slides to begin with.

Color accuracy from the technical standpoint (characteristic 5) is dependent on three factors: proper film/illumination combination, proper exposure and avoidance of ambient light striking the subject. The first factor, using the proper film/illumination combination, is dealt with later in the section on films. Suffice it to say here that sins in this area result in prints and slides of either vivid orange or blue, depending on the particular transgression.

When color film is over- or underexposed not only do the various colors shift in value (darker or lighter) but they also tend to change their hue and intensity. There have been daring rescues in securing usable prints from over- and underexposed black-and-white negatives, but color films have so little latitude this is not feasible most of the time. Slide films, of course, where what you shoot is what you get, offer no second chances at all.

Avoiding ambient light and its influence on color photographs will be discussed in the next article. For those wishing to get started today, however, a word of warning. Do not choose for a "studio" area any which has brightly colored drapes, walls, or other reflective sources. Even a pale green wall reflects a lot of pale green light which the eye and mind screen out but the camera does not.

## Films

When choosing a film, avoid generic and non-name brands. These films often produce erratic results from roll to roll, and the small savings in relation to the potential for disaster is not worth the risk.

A note should also be made of the fact that while black-and-white film can be used under all normal light sources, color films (negative and slide) each have a specific light source to which they are balanced. With the use of appropriate filters, films and light sources can be interchanged, but the results are always better if the proper pairings are made. Appropriate illumination sources and compensating filters where necessary are listed in the film package. Remember that filters affect exposure. Always take meter readings with the filter in place.

### *Black and White Negative Film*

Black and white is the oldest film technology. For that reason, as much as any other, it is also the most reliable and stable photographic format. For long-term documentation, black and white has no equal. Archivally processed negs and prints last indefinitely, given proper care.

The greatest stumbling block to black and white lies in the fact that to get quality (not to mention archival) processing and printing, you have to: know somebody,

hire the work out to expensive professional labs, or do it yourself. Drugstore black-and-white processing and local labs are always quantity, snapshot type operations.

In the event that all three of the above are out of the question, you can usually ask around at specialty camera stores to obtain the name of a local person who does custom orders. With cash, patience and a dedicated willingness to reject prints over and over until they're right, you can eventually get consistent, quality results.

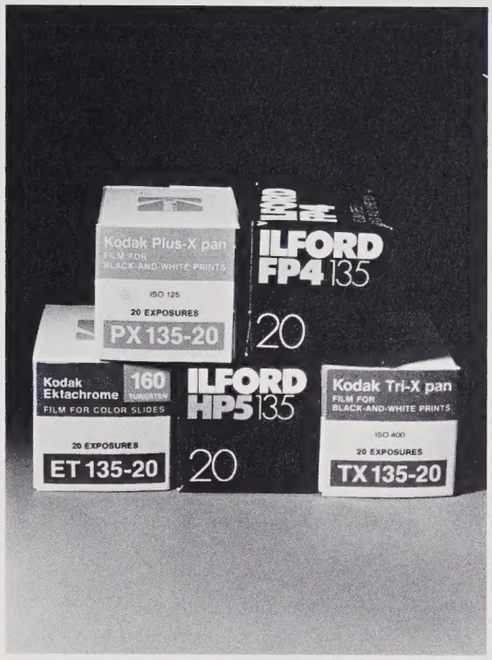
For the do-it-yourselfer consistency is the key. Settle on one developer, one method of processing and one film, if possible. Keep chemistry temperatures within required limits (including washes). Track down problems one step at a time. Never make wholesale changes. If all efforts fail to solve a problem, take a sample to a specialty camera store. People in these stores are usually very happy—and often competent—to help.

There are two major brands of black-and-white film, Kodak and Ilford. Both offer three films with close or corresponding ASAs. Kodak's selection includes Panatomic X, ASA 32; Plus X, ASA 125; and Tri X, ASA 400. Ilford offers Pan F, ASA 50; FP-4, ASA 125; and HP-5, ASA 400. The latter two in each group are very useful because of their high speed but they do exhibit noticeable grain. The two slowest films, while being virtually grain free, cause problems in close-ups because good depth of field is hard to achieve. Also, these films tend to be quite contrasty, making it difficult to keep good detail in shadow and highlight areas. Plus X and FP-4, both with an ASA of 125, are the best bet for the average needs of the craftsman. Good illumination is necessary to keep the depth of field by allowing the use of smaller apertures. The finer grain size, however, is more than adequate compensation for the loss of speed.

*Color Negative Film*

Color negative film has several drawbacks which make it unsuitable for anything other than short-term use. As with black and white, someone must make high quality prints. The cost of custom printing is prohibitively high for most normal circumstances. Doing color oneself, while quite possible, is far beyond what most craftsmen would care to invest in dollars, equipment and time. What is left is the commercial photo-finish industry. Most specialty camera stores either own or use a fairly good commercial lab. The ones that have their own on the premises or at least in town are the best because one can talk directly to the people doing the printing.

The greatest drawback, however, is the instability of color negative film and the prints which result. The dyes in both fade quickly. This can be retarded by storage in total darkness. Even with this precaution, however, negatives will, over the course of a few years, change enough to produce uncorrectable, off-color prints.



Recommended films for slides and black-and-white prints

Kodak produces three color negative films: Kodacolor II, ASA 100; Kodacolor II 400, ASA 400; and Vericolor II, ASA 100. The last is Kodak's professional film which, under proper conditions, maintains very good color accuracy. This film has to be kept refrigerated before and after exposure and should be processed as soon after exposure as possible.

Fugi, the second major color film on the market, comes in two varieties: F II, ASA 100 and F II 400, ASA 400. Fugi has no professional film.

The films of both companies are balanced to daylight only (the daylight designation includes electronic flash). These films can be used under 3200° F. photofloods with an 80A filter or under 3400° F. lights with an 80B filter.

The two 400 ASA films are exceedingly grainy and are therefore unsuitable for most of the craftsman's purposes.

*Color Slide Film*

Slide films are the ones most commonly used by craftsmen. Fundamentally there are two choices, Ektachrome 160 and Kodachrome KPA, both Kodak products. Fugi manufactures two films corresponding to Kodak's Ektachrome 200 and Ektachrome 400, but these films are all daylight balance. As will be explained in the next article, all such photography is best done under photographic lamps. Color, modeling and reflection, not to mention consistency of color from roll to roll, are far easier to control in a "studio" situation.

Of the two films balanced for artificial light, Ektachrome 160, ASA 160, is for use under 3200° F. photofloods and Kodachrome KPA, ASA 40, is for use with 3400° F. lights. An excellent film, Kodachrome is more stable than Ektachrome in storage. The low ASA, however, causes problems in depth of field. The Ektachrome, on the other hand, is four times faster and tends to hold up better under projection. It would be ideal to shoot master slides on Kodachrome KPA and make Ektachrome duplicates for projection and circulation. Ektachrome 160 is an excellent film, however, and is probably the best slide film for most of the craftsman's needs..

## Metering

The meter in a 35mm camera does not separately consider the darkest and lightest parts of a scene. Instead the meter "sees" the total amount of light coming through the lens and indicates exposure settings which, as far as the meter is concerned, will produce a mid-range value on the film—and this is exactly what would occur if the meter readings were based solely on light reflected from a uniformly colored and illuminated surface. Black or white, the actual surface would be rendered on the film as medium gray. In normal photographic situations the actual amounts of light and dark in a scene are fairly closely matched. The exposure settings indicated by the meter usually match the middle values of the film's sensitivity range with the actual middle values in the scene. The darker and lighter values of the scene then naturally fall into place. Photographing a subject against a uniform background, however, invites the possibility and probability of the meter being unduly influenced one way or the other, often resulting in radically incorrect exposures.

A time-honored method of overcoming this common problem is *bracketing*. This involves making three exposures for every shot needed. The first exposure is taken at the settings indicated by the meter. The second is a stop greater in exposure and the third a stop less. The hope is that one of the three will be on target. Even so, many situations present such disproportionate amounts of dark or light areas that the meter can be thrown far enough off to make bracketing a stop in either direction insufficient.

The solution is to get as accurate an initial reading as possible. For this purpose Kodak's Neutral Gray Card is indispensable. Although primarily used in color photography for printing purposes, its middle-gray tonal value makes it an extremely accurate and consistent reflective surface. When you position the gray card in place of or right in front of the subject, the meter, reading the light reflected from the card, indicates settings which will translate the medium gray of the card to an identical medium gray tonality on the film. This matching tone for tone is what proper exposure is all about. It follows that if under a given intensity of light the settings obtained from the gray card would result in its proper exposure

on the film, then the actual subject under the same lighting conditions, using the same exposure settings, will be properly exposed.

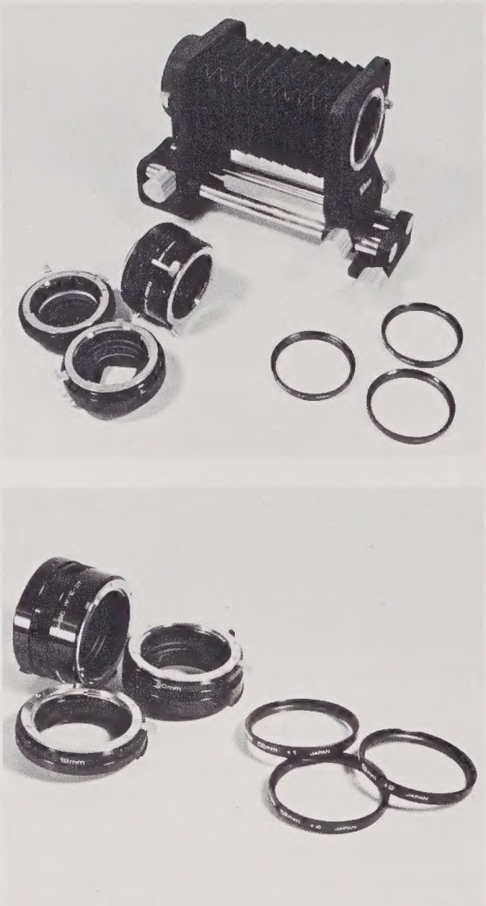
The card should be large enough to completely fill the viewfinder and therefore be all the meter sees. The card must also be completely parallel to the film plane in the camera—any error here and the light which the meter should be reading will go off into space resulting in an incorrect exposure.

When the meter needle has been centered by manipulating the aperture ring and/or shutter speed dial the card is removed, the piece replaced and the exposure is made. Bracketing up and/or down a half to full stop will virtually assure an optimum exposure. In time, if a standard film and standard lighting set up are used, you will develop a sense of judgement which will reduce or eliminate the need for bracketing.

When starting with this method, or breaking in a new film, it is a good idea to shoot a test roll or two. Set up a typical lighting situation, meter it and make one exposure at the indicated settings. Then do a series of bracketed exposures, in half-stop increments, two stops in both directions. This will result in a series of nine exposures. If, after processing, the exposure via the indicated settings is the best, then use it. If, on the other hand, one of the bracketed exposures is more desirable, then alter the ASA calibration setting on the camera so that the meter, in the future, will give settings that produce exposures similar to the favored bracketed one. For every full stop less exposure desired, double the ASA. For every full stop more exposure, cut the ASA in half. For example, say an ASA 200 film produced the best slide with one stop more exposure than the meter indicated (using the gray card as a metering target). The meter is recalibrated by changing the ASA to 100. At this new ASA the meter, with the needle centered, will give the extra stop of exposure as a matter of course. For one stop less exposure the ASA should be adjusted to 400. Interpolating between the full stop ratings (for example, 200 to 100 or 200 to 400) will give the ASAs for half-stop bracket exposures. Half-stop ASA adjustments in this case would result in ASAs of 150 or 300 respectively.

One further point—high-polish pieces very often appear washed out, even when other objects in the photograph are properly exposed. This is due to their high degree of reflectivity. Very little of the light striking the piece is being absorbed. Instead, the light is coming back at the film in a disproportionate amount compared to other areas of the scene, and, in effect, over-exposes that portion of the film.

Such pieces can be given a richer rendering in the photograph by reducing the exposure one-half to one full stop. Keep in mind that this will also reduce exposure to other parts of the subject and scene, so some discretion is necessary.



**Top:** Clockwise from the top: bellows, #1, #2 and #4 diopters, extension tubes **Above:** (Left) set of Vivitar extension rings. (Right) set of Tiffen auxiliary close-up lenses

## Equipment

The following list includes those items basic to the metalsmith's photographic needs:

1. 35mm single lens reflex camera with internal meter and complete manual control capability.
2. Close-up equipment (if work is small enough to require it). The choices are a macro lens, extension rings and auxiliary close-up lenses.
3. Tripod.
4. Filters (as required).
5. Cable release (not absolutely necessary if camera has self-timer).
6. Lights and holders.
7. Neutral Gray Card.

*35mm Camera*

There are many brands of single lens reflex cameras on the market at a wide range of prices. In addition to the requirements listed below, the metalsmith looking to buy a new camera is advised to stick with major brands and to make the purchase from a reputable specialty camera dealer.

The primary requisites for a camera to be used for close-up photography are, first, that it have an internal metering system (as almost all new cameras now do) and, second, that the aperture and shutter speeds be manually controlled. There are a number of auto-exposure cameras which automatically determine one or the other of the exposure controls. Unless such a camera has complete auto override it is impossible to "lock in" exposure settings determined via the gray card. With some of these cameras even bracketing can present serious difficulties.

*Close-up Equipment*

The 50mm lens most people acquire with a camera is fine for camera/subject distances down to one or two feet. For smaller objects, however, such as a ring, which requires the camera to be much, much closer, special equipment is necessary. Three choices are available: a macro lens, extension rings (also known as extension tubes) and auxiliary close-up lenses.

For the purposes of this article some simple tests were performed with the above-mentioned choices to determine image quality and their maximum close-up capabilities. Illustrations *A*, *B* and *C* are uncropped prints, all equally enlarged, of the same 27mm tall finger ring. These illustrations give some idea of how much of the negative is occupied by the subject at the maximum close-up capability of each piece of equipment.

The relationship between the subject's actual size and the size of the image on the film is referred to as the reproduction ratio. A ratio of 1:2 signifies an image half the size of the actual subject. In a 1:1 ratio the image is life size on the film. The reproduction ratio in the negative which produced *A* is approximately 1:3. In comparing the three close-up devices reproduction ratios will be referred to.

*1. Macro Lens.* Cost range for 55mm $160–$260; for 100mm $220–$435. A macro lens is in many respects quite similar to any other lens of the same focal length (which is what the 55mm refers to). The difference between the macro and the "normal" lens that comes with a camera is that the macro can focus down to about four inches from the subject, giving a reproduction ratio of 1:2. Some macros come with an extension ring which allows them to focus down to a 1:1 ratio. The close-up image afforded by the macro by itself would be slightly larger than that of *A*. With the extension ring the image size would appear as in *B*.

The image quality of the macro is far superior to that afforded by auxiliary close-up lenses and the lens itself is much more convenient to use than extension rings. A further bonus is that macros have an f-stop range down to f32, giving the maximum depth of field at any focusing distance.

The extra expense of the macro can be somewhat mitigated by purchasing it in-

stead of the usual 50mm lens when buying a new camera. In most cases the macro will serve for general photographic needs as well.

When working very close in, the 100mm macro may be preferable. With this lens the camera can be twice the distance from the subject, while maintaining the same image size on the film, as a 55mm macro lens. This allows more working room, reduces the size of the lens reflection on high-polish pieces and avoids the possibility of interfering with the lighting. The 100mm macros do cost more, however, and, being somewhat like a telephoto, have less general purpose use.

*2. Extension Rings.* Average cost $65–$75. Basically extension rings are hollow tubes which move the normal lens a fixed distance from the camera body allowing close-up focusing. The better ones maintain the coupling between the lens and body so aperture and metering functions are left intact. Extension rings generally come in sets of three, although in some cases they can be purchased separately. Each ring in a set is a different length and therefore gives a different range of close-up focus. The rings can be used in pairs to obtain intermediate ranges or all together to get maximum close-up capabilities.

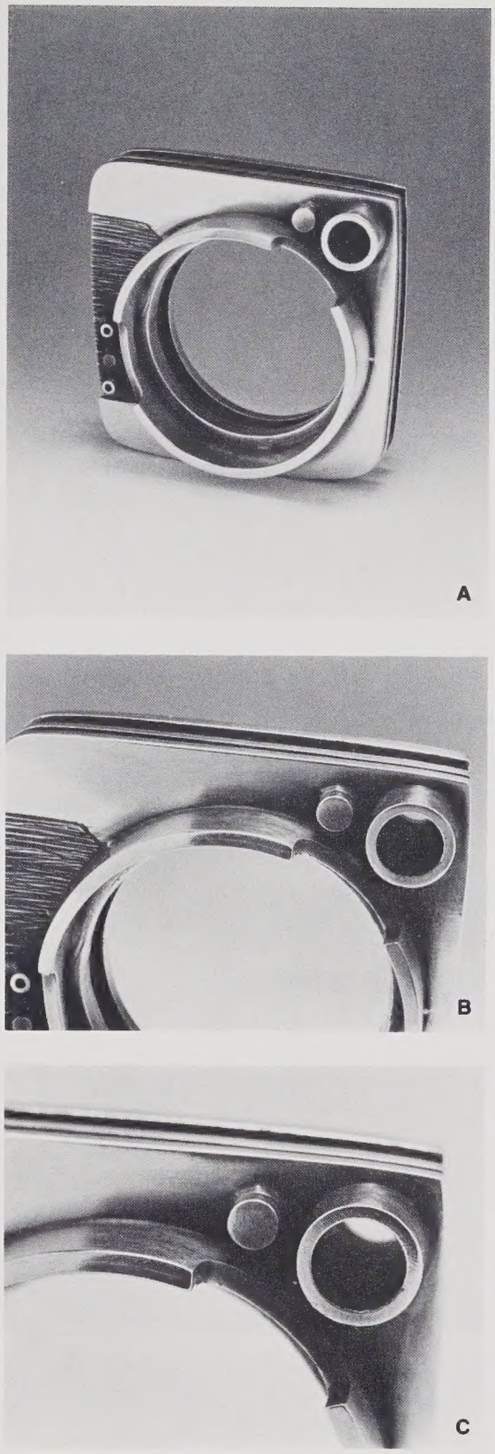
The Vivitar extension ring set used for testing in the writing of this article included 12mm, 20mm, and 36mm rings. Other manufacturers offer different individual lengths. A reproduction ratio of 1:3, as illustrated in *A*, was obtained by using the 20mm ring by itself. *C* was produced using all three rings together giving a total extension of 68mm. The resulting reproduction ratio was 1.4:1.

Although the image quality is somewhat less than that of a macro lens it would be virtually unnoticeable in all but the most critical situations. The edges of the negative, where the image quality was lost, are seldom occupied by anything other than background.

The primary disadvantage of extension rings is their nuisance value. Switching from one ring to the next takes time and in heavy use situations puts some heavy wear on camera and lens mounting plates.

*3. Auxiliary Close-up Lenses.* Average cost for a set of three $30–$40. These sets consist of +1, +2 and +4 screw-on lenses which thread onto the front of the camera's normal lens in the same fashion as filters. By pairing close-up lenses, values of +3, +5 and +6 can be obtained. Each "plus" value has a set range of focus. For instance, using the +2 and +3 together, a focusing range of approximately eight inches to six-and-a-half inches is available.

Maximum close-focusing ability is achieved by using the +2 and +4 in tandem, which results in a reproduction ratio of 1:3, which, as previously mentioned, is the ratio in *A*.




These photographs are all of the same 27mm sterling ring. All are reproductions of the full negative for comparison purposes. All were photographed on Plus-X film, rated at ASA 125 and developed in D-76, diluted 1:1. **Top, A:** Negative made at 1:3 reproduction ratio with a 55mm macro lens set at f32. **Center, B:** Negative made at 1:1 reproduction ratio with a 55mm macro lens and accessory extension ring supplied with the lens. The lens aperture was f32. **Bottom, C:** Negative made at a 1.4:1 reproduction ratio with a 50mm normal lens extended 69mm on three extension rings. Lens aperture was f16.

Auxiliary close-up lenses have some inherent problems in image quality. This is partially due to their inexpensive manufacture and partially due to the concept of adding a magnifying lens to a prime lens that was not designed for it. Compared to both a macro lens and a normal 50mm lens on extension rings, images produced with close-up lenses are perceptibly less sharp at the center and get increasingly worse towards the edges. By careful use, however, image degradation can be minimized and result in photographs of acceptable quality.

Most essential is the choice of f-stop. No stop of larger diameter than f-8 should be used. By using smaller apertures the actual image path is through the center, and most distortion free, portion of the auxiliary lens.

Never use more than two auxiliary lenses together. To do so is to invite serious loss of sharpness. When using the lenses in pairs, always put the higher value directly on the camera's lens and the lower value on top of that. This minimizes distortion.

Cleanliness is also very important. With two to four more surfaces of glass introduced between the subject and the film, serious loss of sharpness could result from dust and fingerprints. Clean dust off with a soft brush and fingerprints with lens-cleaning tissue. Store the auxiliary lenses in the accompanying case when not in use to avoid scratches.

Besides economy and convenience, auxiliary close-up lenses have another advantage. Due to the extension of the lens in both macros and extension ring/50mm lens combinations, there is an appreciable loss of light in extreme close ups. Auxiliary close-up lenses, by nature do not have this problem. Focused at a 1:3 reproduction ratio (maximum for auxiliary lenses), these lenses can produce an exposure with half the light necessary for the other two methods. This equals one f-stop.

As noted in the above discussion, all three of the close-up devices meet or exceed the 1:3 reproduction ratio of which *A* is an example. Most craftsmen will never need or want to focus closer than this as depth of field becomes increasingly poor. The choice then between a macro lens, extension rings and auxiliary close-up lenses becomes one of quality, cost and convenience. Those opting for the auxiliary close-up lenses should perhaps do so with the intention of graduating to one of the other methods when it becomes feasible, as both the macro and extension ring/mm lens combination offer higher image quality.

One final note, there are several variable-focal-length lenses (commonly known as zoom lenses) currently on the market which advertise a macro capability. With some of these lenses the macro means close-focusing in feet rather than inches. Others, however, have a respectable close-focusing capacity resulting in reproduction ratios as great as 1:2.8., slightly greater than the 1:3 ratio shown in *A*. While the image quality in these lenses may be slightly less than that achieved in a fixed-focal-length lens (such as a 50mm or 100mm lens), the practical differences are negligible.

*Tripod*
A good tripod has as much to do with sharp photographs as the lens. One costing between $70 and $140 should be considered. Heavy tripods are much more stable than the light-weight variety. The tripod should have a head which tilts both front to back and side to side. Do not get one where the head works on a ball and socket, as these rapidly become loose and unstable. The legs should be equipped with positive locking mechanisms to prevent the camera from falling.

*Cable Release*
The cable release is a device which allows the shutter to be released without jarring the camera. It is simply a cable with a plunger at one end and threads which fit the shutter release at the other. Be sure to obtain one designed for the camera in use.

If the camera has a self-timer, the cable release can be dispensed with. Some cameras, however, have a timer which has to be set for a full 10 second delay. In such cases, a cable release can save time.

*Lights and Holders*
Photofloods rated for 3200° and 3400° F. may be purchased in any specialty camera store. Some very nice, and inexpensive, clamp-on type holders, however, can be found at the local hardware store. These are usually more versatile for the craftsman than large light stands because they are small and work well in tabletop studios.

*Gray Cards*
These are acquired at any specialty camera store. Four 8 x 10″ cards come to a pack for about $4.

**Appendix**

*F-stops and Shutter Speeds*
The exposure made on a piece of film is a function of the amount of light striking it and for how long. The amount of light is controlled by an adjustable diaphragm in the lens itself. It is set by manipulating the aperture ring on the lens, which is marked off in an odd series of numbers known as f-stops. The higher the number on the ring, the smaller the aperture and thus the less light striking the film. The lower the number, the greater the amount of light. Although it can't be deduced from looking at the f-stop numbers, each admits half the light as the one before and twice the light as the one following. Therefore, F8 gives an exposure twice as great as F11 but only half as great as F5.6. The difference between one f-stop and another is referred to as a stop.

The shutter is a cloth or metal curtain in the camera body which snaps open and shut giving the total exposure time pre-set on the shutter speed dial. Shutter speeds are measured in fractions of seconds. For example, ½, ¼. However, shutter-speed dials are usually marked off in whole numbers. The 1 indicates an exposure of one second. After that, though, the succeeding numbers are all denominators of fractions of seconds—for example, 2 indicates ½ of a second, 4 indicates ¼ of a second and so on. Like f-stops, shutter speeds are a geometric progression—each speed gives half the exposure time of the preceeding setting and twice the time of the following.

The difference between one shutter speed and the next is equivalent to the difference between one f-stop and the next. Therefore, identical exposures would result from using any of the following combinations: F8 at ¼," F11 at ½," or F16 at one second.

Although the term stop technically refers to the difference between one f-stop and the next, it has also taken on a more generic function. To say an exposure should be reduced by one stop means only that the exposure should be cut in half, either via the aperture ring or shutter speed dial.

*Depth of Field*
For any given point of focus in a scene, a certain distance in front of that point and a greater distance in back of it will remain in sharp focus. This range of sharp focus is known as depth of field. It is a function of distance and aperture. As the distance between subject and camera increases so does the depth of field, until, at the infinity mark on the lens, everything from 30 feet to infinity will be in focus with a 50mm lens. As the subject approaches the camera, however, depth of field decreases until extreme close-up ranges at which the effective depth of field can be measured in millimeters.

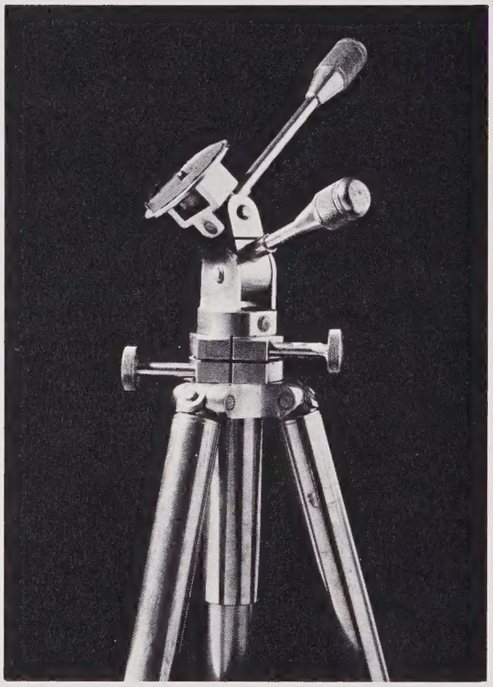
Whatever the distance of subject to camera, there is still a range of depth of field controlled by the aperture—the smaller the aperture, the greater the depth of field. Since the metalsmith must often work extremely close up, aperture is the only method by which critical focus can be maintained on the subject front to back.

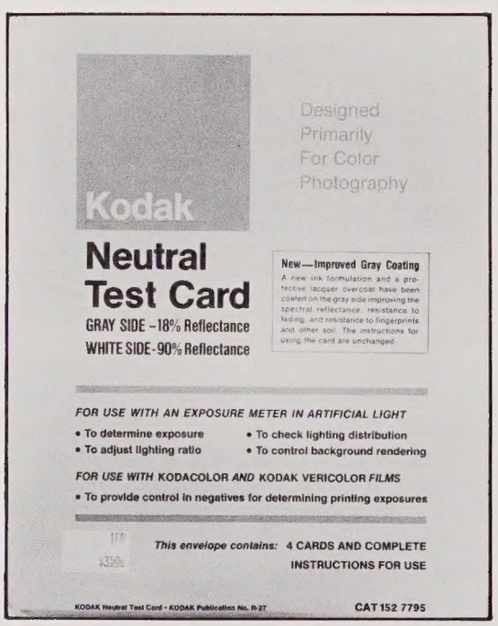
*ASA, Film Speed and Grain*
Film speed refers to a film's sensitivity to light and is indicated by an ASA rating number, which appears on the outside of the film box and on the data sheet packed within. The ASA number is used as a basis of comparison in ranking one film in respect to all others according to the amount of light necessary to make a proper exposure. The camera's meter is calibrated to a film's exposure needs by setting the camera's ASA indicator to the appropriate number.

A film whose ASA number is twice that of another film is said to be twice as fast. In practice this means that an ASA 400 film can achieve a proper exposure in half the time *or* with half the light of a 200 ASA film. What this amounts to is a one stop difference in exposure in this particular case. The advantage to fast films is that by requiring less exposure time to achieve a proper exposure the options are better for using small f-stops and maintaining the maximum depth of field.

While faster films allow a greater potential for maintaining depth of field, they also exhibit increased grain size over the slower films. Grain is the normal clumping together of the silver particles which compose the image. Usually unnoticeable in a negative or handheld slide, enlargement to a print or screen projection will prove significant grain to be a serious flaw in the detail and definition of a photograph.

Grain is most apparent in the mid-values which usually constitute the major part of a photograph.

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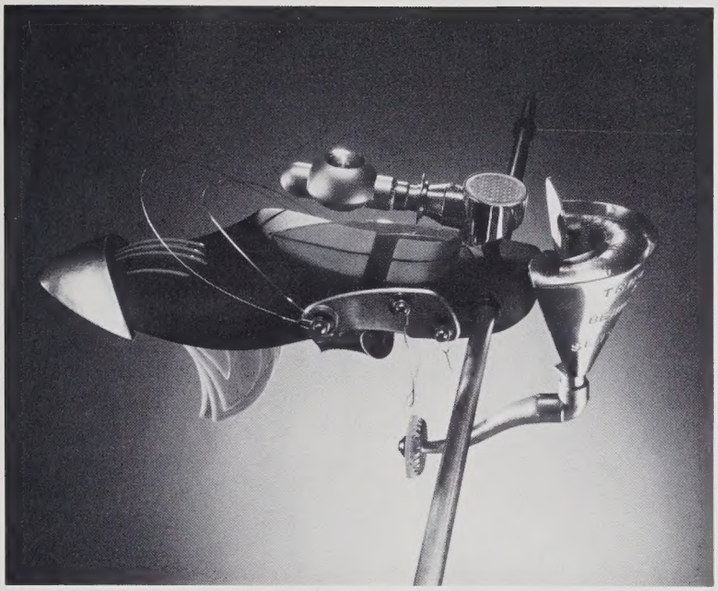
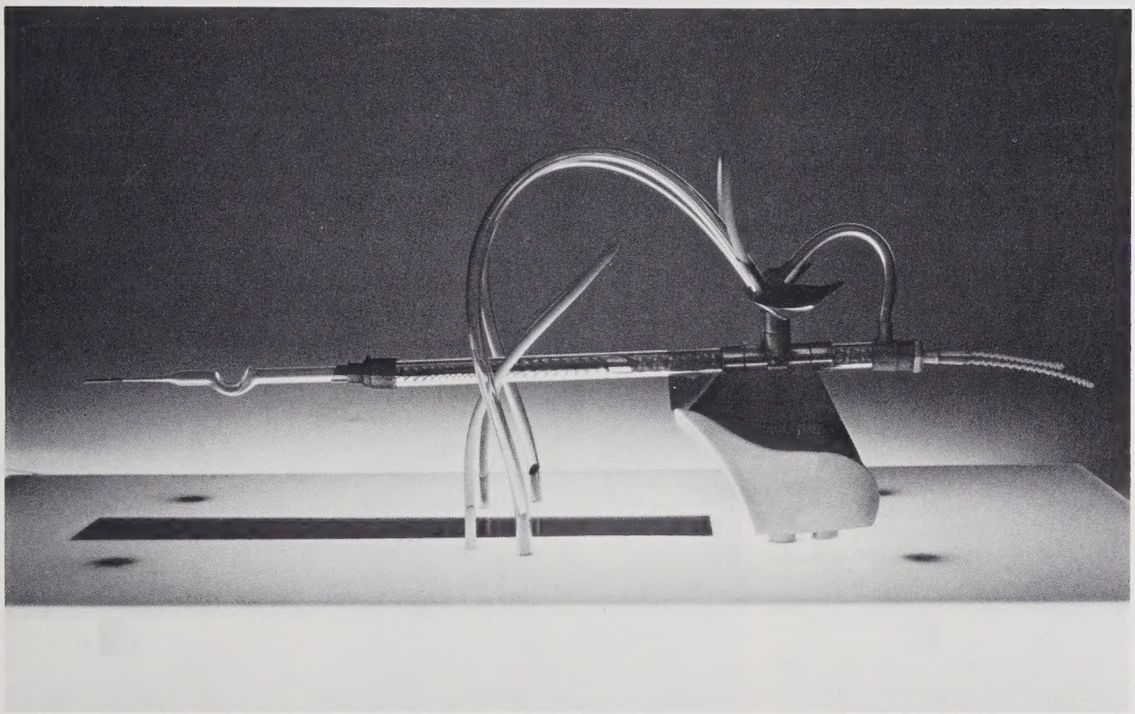
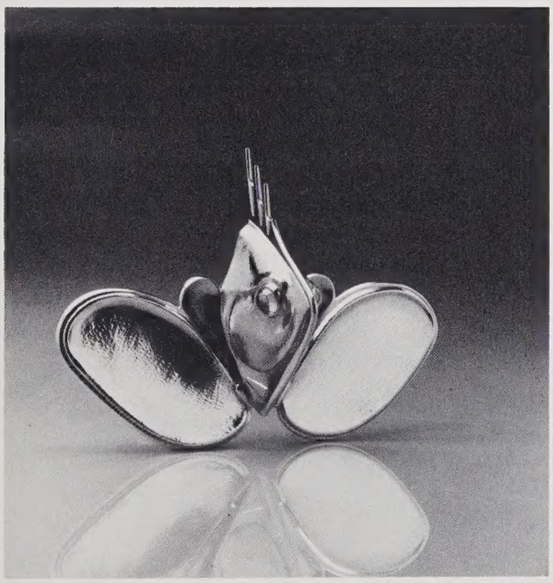
**Top:** Tripod with head that tilts side to side as well as forwards and backwards **Center:** Clamp-type photoflood fixture available at many hardware stores **Above:** Kodak Neutral Test Card package

**Acknowledgments**
Great appreciation is extended to my brother Jerry Brown, as well as Matt Diamond, Steve Meyer and Matt von Riesen for their critical comments and technical advice in the compilation of this article. Special thanks to Western Camera, Inc. of Fort Collins, Colorado for unlimited access to photographic equipment.

Leslie F. Brown, who holds a B.F.A. from Colorado State University and an M.F.A. in metalsmithing and jewelry design from Indiana University has also worked as both a professional darkroom technician and photographer. During his graduate studies at IU he was awarded a grant to investigate methods of reflection control when photographing highly reflective objects. He is presently a self-employed metalsmith, working in Fort Collins, Colorado.







**Top left:** Beth Potter Rizo-Patron, *To Come This Far Only to Have Gone Nowhere* (detail), found object, copper, silver, bronze, steel and plexiglass, 15x5x6" **Top right:** Beth Potter Rizo-Patron, *Grade A Extra-Large* (detail), found objects, aluminum, brass, porcelain, xerox on acetate, glass, plexiglass, stone, feathers, 20x26x19" **Center:** Beth Potter Rizo-Patron, *Ad Infinitum,* found objects, brass, silver, plexiglass, glass, platics, 16x36x18" **Above left:** Marcia Lewis, *Pond Comet,* brooch-pendant, silver, 24K plate and aquamarines, 3½x4¾". Photo: Roger Marshutz **Above right:** Neda Al Hilali, detail of *Lybussa,* constructed paper form, 72"x72", 1980. Photo: Roger Marshutz

# Exhibition Reviews

**Beth Potter Rizo-Patron Sculpture in Mixed Materials**
Clifford Gallery, Pittsburgh Center for the Arts, Pittsburgh, PA
January 31–February 22, 1981
by Florence Rouzier

Beth Potter Rizo-Patron's sculptures look like objects frozen in time to reveal a deeply personal yet insightful vision. In the six works shown at the Clifford Gallery, she combined a variety of materials and found objects. The skillfully constructed pieces were strangely reminiscent of another time and place, where reality is a fusion of organic and inorganic materials and where romanticism and classicism make strange yet cooperative bedfellows.

In one piece, entitled "To Come This Far Only to Have Gone Nowhere," two nearly identical forms resembling human feet were juxtaposed. The two were actually a set of old wooden shoe-trees, whose former function was disavowed by the artist's aim towards endowing them with symbolic capabilities. One of the forms was presented as an assemblage of rusty nails, porcupine quills, feathers, shells and other fetishlike objects. The other foot form, cast in a black paint garb and involving mixed-metal constructions, light-transmitting plexiglass and a small light bulb, looked like a purer, distant parent of the former. Both forms hung from rods in a suggested state of suspended animation. The weaponlike suspension rods, one fashioned in wood and the other in steel, extended beyond the walls of the plexiglass boxes in which they were hung and connected the two divergent forms in a straight line. Like one powerful bolt of lightning, the connecting rods forced the viewer to contemplate man's future as shaped by his past.

Beth Potter Rizo-Patron's frequent reference to scientific motifs and materials suggests the artist's struggle to reconcile conflicting views of the world. The human scale of the sculptures invites the viewer to come closer and examine the carefully conceived and executed details of each piece. Rhythm and juxtaposition are important considerations. "Manipulation of metaphors and symbolic implications are, by now, a prerequisite to most of the work I do," the artist states. She is also keenly aware of the demands she places on the viewer, "I do not decorate. . . . I investigate. . . . In so doing, I ask my viewers to do likewise."

**Made in LA**
Craft and Folk Art Museum,
Los Angeles, California
January 28–April 12, 1981
by Susan Kingsley

In this important exhibition, 60 local craftsmen were represented. A fine catalog, a pamphlet containing artist's statements and a series of Saturday afternoon "Conversations with the Artists," were evidence of the museum's dedication to educating the public about crafts. The museum will attract international attention to these craftsmen when this show travels to Finland later this year.

Some predictably fine work was presented by nationally known craftsmen Sam Maloof, Laura Andreson and Harrison McIntosh. The maturity and strength of their work is an affirmation of the tradition of fine crafts and of the possibility of a career of excellence.

Other outstanding work was exhibited by fiber artists. Carol Shaw-Sutton's soft and lustrously colored smooth sticks, lashed together and interwoven with spearlike and dartlike shapes entitled "Dark Gateway," and a nonfunctional free-standing basketry form entitled "Crossing," showed an original and sensitive use of materials in a way that both imposed order and allowed the natural qualities of the materials to flow. Cornelia Breitenbach exhibited two very large pieces in which she had airbrushed dyes and acrylics onto cotton, which was laminated to corrugated fiberglass. The calculated ordering of the brilliant color in an almost mathematical system, offset by the play of light across the gently undulating surface, created an effect of seductive beauty and subtle complexity.

Another exceptional piece was Neda Al Hilali's "Lybussa," a six foot square of constructed woven brown paper which was pressed flat and painted. Bold cross-hatches, thinner lines and floating triangles created an illusion of texture in a shallow space. She isolated and emphasized underlying structure, patterns and repetitions, the classical concerns of weaving, while eliminating fiber as the vehicle.

The six pieces by glass artist Richard Marquis, all from his "Frabricated Weird Series," were what one would expect to see in this exhibition. They were unafraid of pastel southern California colors, whimsical, irreverant and fun.

The metalwork in this show, while seemingly comparable to work from other metalsmithing shows across the country, seemed conservative and dated in the context of the innovative work in other media. Several pieces had, in fact, been shown and published previously. Marcia Lewis's two new pieces were the exception, and they showed admirable technical expertise. The large scale and bright colors of the other work in this exhibition might have contributed to the inability of the metalwork to compete, and it was at a definite disadvantage being housed together with other crafts in glass wall cases. But I had hoped to see some metalsmithing that would excite the eye, evoke a response, fascinate or raise questions, and I was disappointed. I came away wondering why the metal seemed so anonymous and lacking in innovation and why metalsmiths are not producing new work which is comparable in quality to that in fiber, glass and clay.

I wondered also how such an important show could be a valid representation of a city of seven million people when the artists were selected by one person. Many seemed to be chosen because they were well-known teachers, rather than because their work had merit. While all shows reflect the personal taste and preferences of the juror(s), I have to ask how enameling, blacksmithing, papermaking, bookbinding or stained glass could be left out, when student work and work by craftsmen living outside Los Angeles seemed to be included only to illustrate a certain point of view.

With the increased attention shows such as this are focusing on contemporary crafts, a real challenge to metalsmiths is presented. To produce work which is equally exciting as that being produced by artists in other disciplines, we need to free our thinking, take risks and go beyond our own self-imposed limits.

**Introductions**
Craft and Folk Art Museum, Gallery 3, Santa Monica, California
November 21, 1980–January 11, 1981
by Susan Kingsley

This invitational exhibition inaugurated a new gallery space with the presentation of the work of 12 people not well known in Southern California. Curators Susan Skinner and Ann Robbins hoped to suggest current trends, letting each artist's selection of four to 12 pieces, along with a statement, represent his or her concerns. In addition to a well-presented, rich visual experience, this exhibition suggested interesting new relationships between concepts and work.

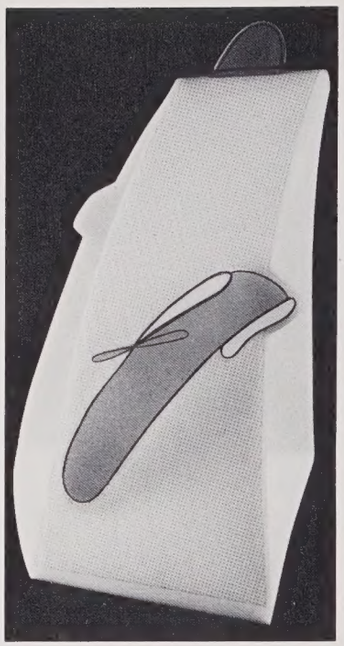
Gallen Benson has achieved near perfection with cloisonné enameling and goldsmithing. If it can be said that art is the subject matter of art, cloisonné was the subject matter of Benson's work. Personal expression and communication were not his concerns. Similarly, notions of nonconformity, or expanding outwardly the possibilities of this medium were absent. His imagery, determined by what translates well into cloisonné, was contemporary, but as in the "Panda Brooch," it also made reference to the tradition of Chinese cloisonné and design.

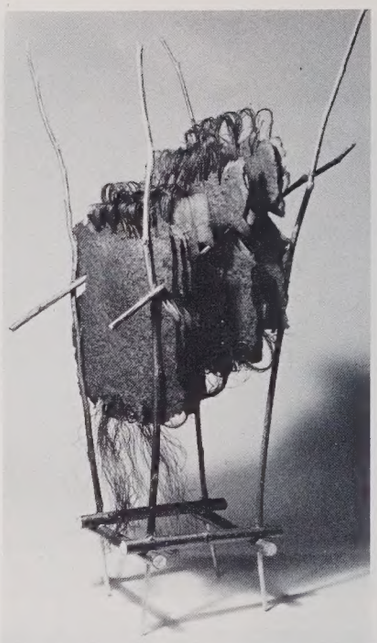
In the complex work of Bruce Metcalf, the visual presentation of ideas with the intention of communicating with and touching the viewer predominated. Miniature worldly images mingled with other-worldly meanings suggested by his titles. Stylized forms and symbols suggested logic and reality, while abstract shapes and their odd arrangements in space evoked circuits of associations. Metcalf uses metal and traditional metalsmithing skills with wonderful finesse, but also employs plastic, wood and other similar materials as they are needed. Many parts of his pieces were painted, and in some, parts detached and were wearable as pins.

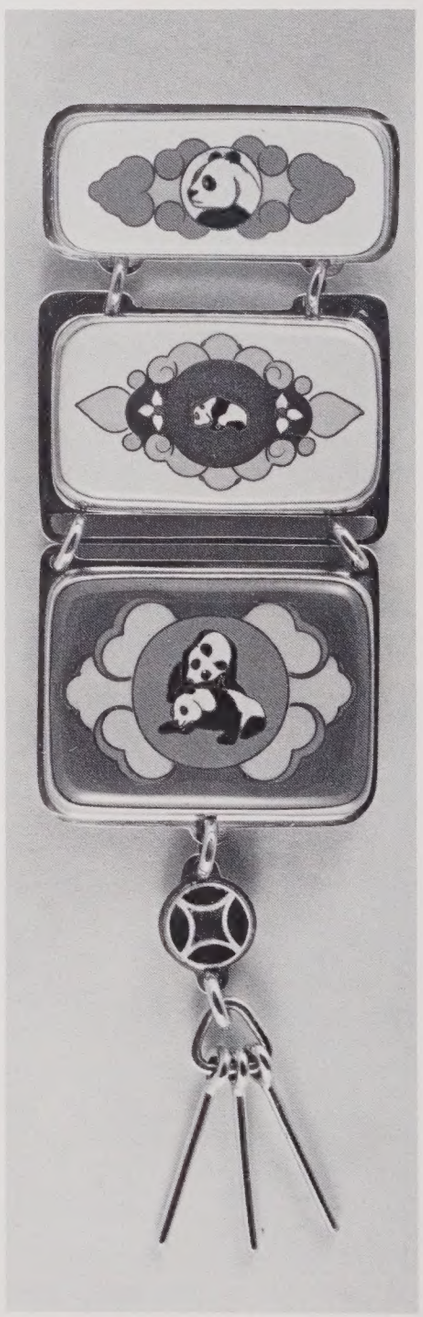
Metalsmith Amy Davison departed from metal entirely in a series of plastic constructions. Stylized, cartoonlike drawings of shoes and purses playfully floated by in 1950s pink and aqua. They were slick pseudo-artifacts of pop culture, reminding one of fad fashions and fast dances in plastic fantastic. While there was recognizable subject matter, it seemed to function in a decorative manner rather than suggesting content.

The other craftsmen represented in this exhibition showed work suggesting ideas similar to the three metalsmiths. Several, such as basketmaker Johnathan Krout, paralelled Benson in his use of materials and techniques as boundaries to work within. Like Metcalf, glass artist Dan Dailey has expanded the limits of his craft to include other materials, to help emphasize the content of the work. Personal vision and imaginative use of materials make this work highly individual.

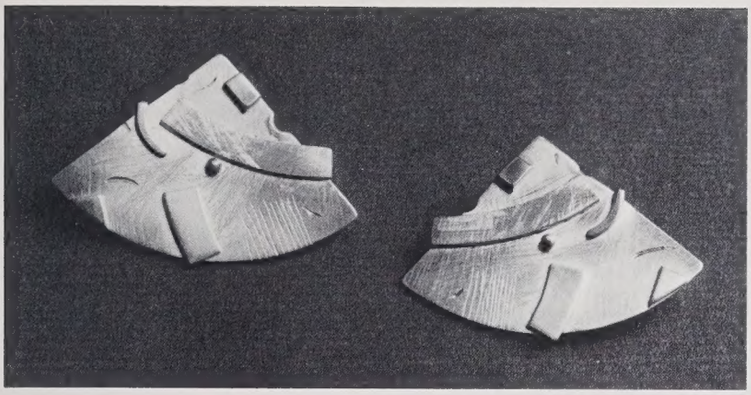
Rejecting both the traditional use of







**Top left:** Amy Davison, *Sculpture Series,* plastics and drawing, 12x6x6" **Top right:** Michael Olijnyk, *Leaning Pieces,* handmade paper, sticks, silk, 4x4x15" **Above left:** Gallen Benson, *Panda Brooch,* 14k gold, cloisonné enamel, 2¾x⅞" **Above right:** Gallen Benson, *Tufted Puffin Brooch,* 14k gold, cloisonné enamel, 2½x⅝"



**Top:** Jill Slosberg, *Gardening on Saturn* cufflinks, 14k yellow, red, white gold, 1¼", 1980. Photo: Stephen Shipps **Center:** Lucy Ann Puls, *Balance*, copper-plated bronze, rock, cement, glass, 8½x11½x10", 1979 **Above:** Bruce Metcalf, *All Floating*, brass, plexiglass, paint, 13x10x6½", 1980

materials and content, similar to Davison, was fiber artist Michael Olijnyk. His visually complex constructions of twigs, handmade and dyed paper and silk threads were meant to be a "finished state of information, the result of a process." The richness of the materials and their arrangement in space was the total statement.

Other directions were also notable. The vessel was more often seen as a container for space, rather than a functional object. Glass artists Andrew Magdanz and Charles Parriott turned vessels upside down, perforated or intentionally cracked them to make function seem beside the point.

Ceramists Bennett Bean and Rick Dillingham and fiber artist Marika Contompasis included in their work both subtle and direct references to the tradition of their craft. This did not compromise the contemporary and personal qualities of their work, but contributed substance and maturity.

In this exhibition function no longer explained the nature of craft. Excellence went beyond skillful technique or use of materials. Artistic presence required more than the application of some pervasive art theory. Perhaps the best definitions of quality here were the works themselves.

### Jill Slosberg, Jewelry

Harcus Krakow Gallery, Boston, Massachusetts
December 1980
by Bruce Metcalf

In this show Boston artist Jill Slosberg rejected the notion that an art statement in jewelry must be large and thus unwieldy to wear. The forms of the pieces were quite conventional—hoops for bracelets, circles for necklaces and discs or donut shapes for earrings. The surfaces held all the action. Faceted planes shifted levels and colors, or textures and gestural marks filled up the simple geometric shapes.

Slosberg called the show "Reconciliations" to indicate that the work was a marriage of her passion for minimal form and surface and her love for the highly personal use of tool marks. Some of the marks were almost like abstract calligraphy. The jewelry was used consciously as a conceptual vehicle, not just as an excuse for tasteful design. Although the pieces were in actuality quite tasteful, and would function well as decorative accents, it was the intelligence of the work that was most compelling.

Most of the work was very spare—really too spare. For, although the jewelry may have made superb wearables, being shiny and unobtrusive, there wasn't a great deal to look at when the pieces were considered as discrete objects. Minimal sculpture avoided being boring by being huge, but Slosberg's jewelry couldn't take advantage of overwhelming scale to impress. As a result, the work quickly lost interest.

On the other hand, if one is aware of Slosberg's other work, the work in this exhibition looked better. Slosberg, not intimidated by sculpture, does make metal reliefs—large floor installations consisting of papier-maché squiggles arranged in a well-defined area. Familiarity with the larger, more sculptural work throws light on the small work as yet another expression of the same ideas, and it then becomes apparent that jewelry does not necessarily have to be a minor art form.

### Metal Invitational

Tower Fine Art Gallery, SUNY, Brockport, New York
January 23–February 28, 1981
by Peter Moss Handler

*Metal Invitational* was a mélange of 51 pieces by 24 metalsmiths assembled by Tom Markusen and Albert Paley. The show exhibited the work of a range of artists in the field from around the country. The lack of specific theme was evident in the diversity of the pieces, from Roger Tawa's small, carefully constructed gold ring to Joel Schwartz's forged-steel grill sketches.

However, the dichotomy between wearable, precious jewelry and nonfunctional objects that pervades the field of academic metalsmithing today was clearly in evidence. The trend toward nonfunctional objects speaks of expansion beyond gold-silver-metalsmithing into the field of sculpture. The move to sculpture, I believe, grows from the desire of metalsmiths to grapple with more than form, design and technique and move into the realm of ideas and concepts.

This is not a new direction in crafts. Sculptural ceramics date back at least to the 1950s. J. Fred Woell's badges and other satirical pieces of the 1960s were a significant antecedent to this current direction in metalsmithing.

In this show the works of Gary S. Griffin, "Construction 80-2" and "Construction 80-3," evidenced a clear divergence from the tight, wholly rational and machined images of his earlier pins and neckpieces. In "Construction 80-2" the pedestal still had the machined accuracy of Griffin's earlier work, but the rest of the piece was made of black painted industrial fragments and machining scraps set on a base of violet diffraction grating. The overall effect was a formal creation of tension between the ordered and rational and the irrational and fragmented, suggesting aspects of current technological society.

Visually similar concerns were reflected in Bruce Metcalf's "All Floating." The random placement of acrylic elements, mostly unrecognizable squiggles floating above an obliquely tilted rectangular acrylic sheet, created a tension with the delicate yet near-industrial support mechanism in the back. Characteristic of Metcalf's meticulousness, the mechanism was finely detailed and retracted smoothly against the piece. Metcalf's "Vessel With Optimistic Figure" also exhibited a perfectionist attention to detail. The surreal and brightly colored "optimistic figure" on the scale-model boat created a real/unreal tension. The use of a shed roof behind the piece covered with asphalt shingles was unusual, yet it exemplified Metcalf's penchant for using any material that suits his ideas.

Carol Kumata continues to use straw as a central element of her work. "Wrappings II" had layer upon layer of colored paper and metal surrounding and enclosing the straw bundle, bound with colored cord set on a base of raw, rough stone. It evoked subtle gesture, minimal, restrained and Oriental in flavor. "Stone Setting I" was something of a visual pun, with a smooth and slightly carved black rock set into a black metal box cradled in layers of painted, inlaid, sandblasted, polished and patinated metal. The whole still maintained visual restraint.

Though taking a very different direction, the two large (6' x 2" x 2")

machined aluminum wall sculptures of Frances Welles had similar restraint. Her imagery clearly refers to a technological esthetic, creating a minimal expression of machined geometry. Perhaps because of their thinness and horizontal format, the pieces looked like brooches for a wall.

The largest works in the show were Jeffery Krolick's "My Heart" and "Romantic Me," body-scaled sculptures of cut, bent, pierced and welded steel, painted respectively in black, white and pastels and black, blue and primary red and yellow. They attempted to make the transition from small-object-making to monumentality with only partial success. While the images and forms were strong enough to hold interest, they were small enough that the lack of accuracy and streakiness of the painting became bothersome. The relative crudeness of the painting was an unfortunate contrast to Krolick's comfort with forged and welded steel.

Lucy Ann Puls's "Balance" dealt with geological references, evincing a concern with the interaction between mankind and the natural environment. The glass shards that visually seemed to partially support the rock could not help but suggest broken beer bottles scattered around once pristine wilderness. Her hard-edge metal forms surrounding the rocks made me think of our penchant for building roads to and structures in the most remote of our geological and natural wonders.

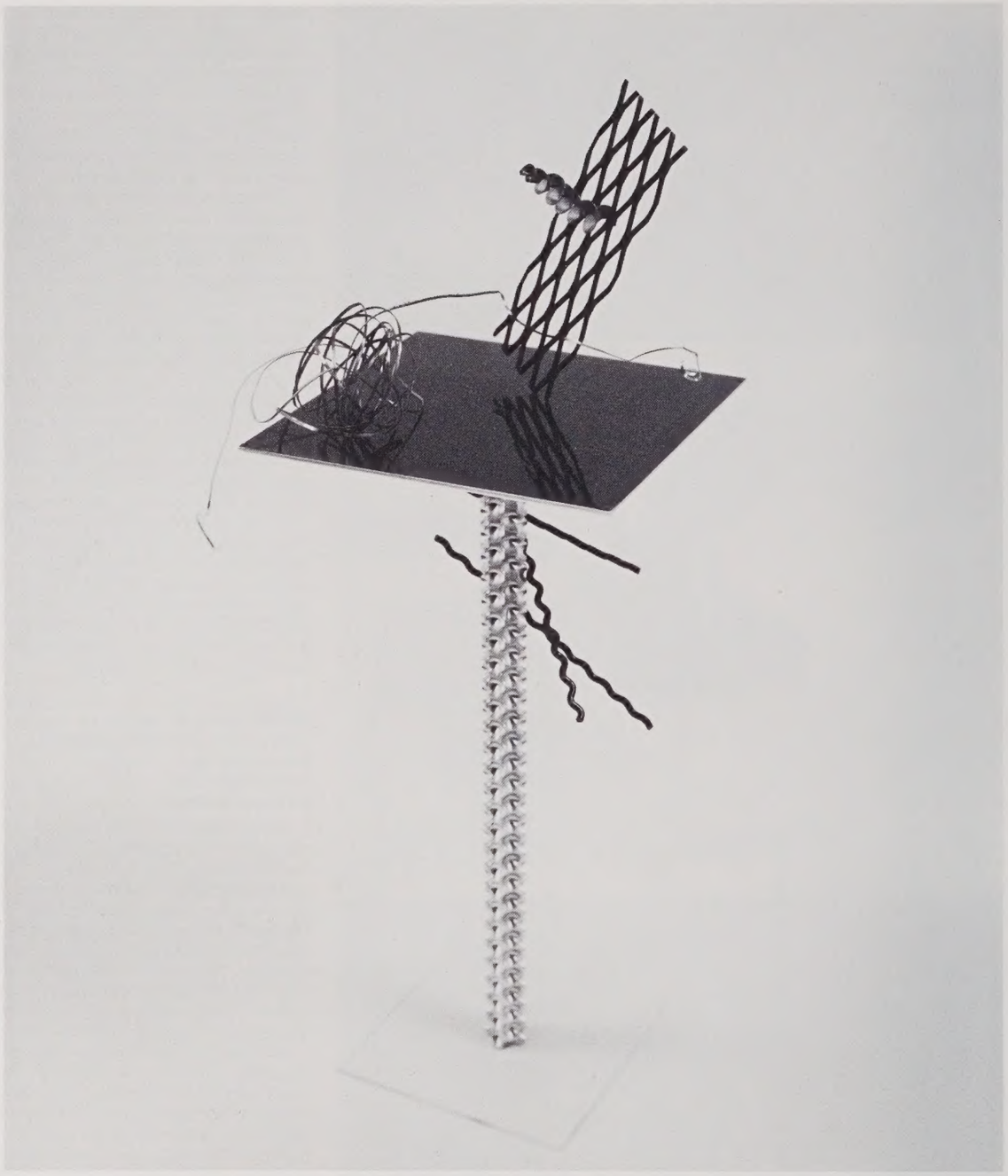
Martha Jane Glowacki's "Dilluvial Accumulations" had the appearance of an aerial landscape set in a wood box, the landscape of painted paper with a thin wisp of copper wire the only metal in the piece. Here she worked more as an image maker than as a metalsmith, in contrast to her pin "Variegations #3," a study of various grid forms and patterns in mixed metals, which appeared more of an exercise than a fully resolved form.

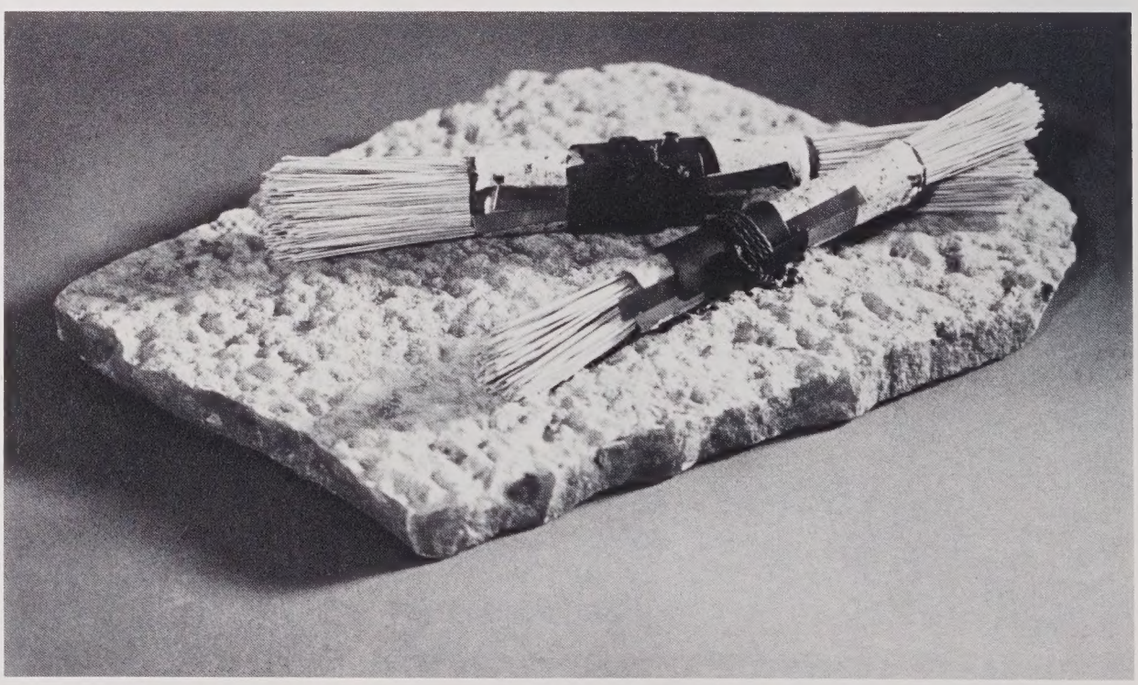
Bridging the gap between sculpture and jewelry were the "brooches" by David Keens—small, milled or lathe turned objects with turned polyester end pieces with Keens's characteristic thorns thrusting from the white polyester elements. They were brooches in name only, having no attachment mechanism. They rested in heavy, milled aluminum bases. "Brooch #6.9" had a fragment of fine mesh screen lying lightly over it. One wanted to touch, feel, lift the pieces—wearable or not. The thorns seduced. They became brooches conceptually rather than literally.

Jamie Bennet's enamels were essentially small paintings in subtle earth colors. With function not an object, they would nevertheless be eminently wearable and desirable pins.

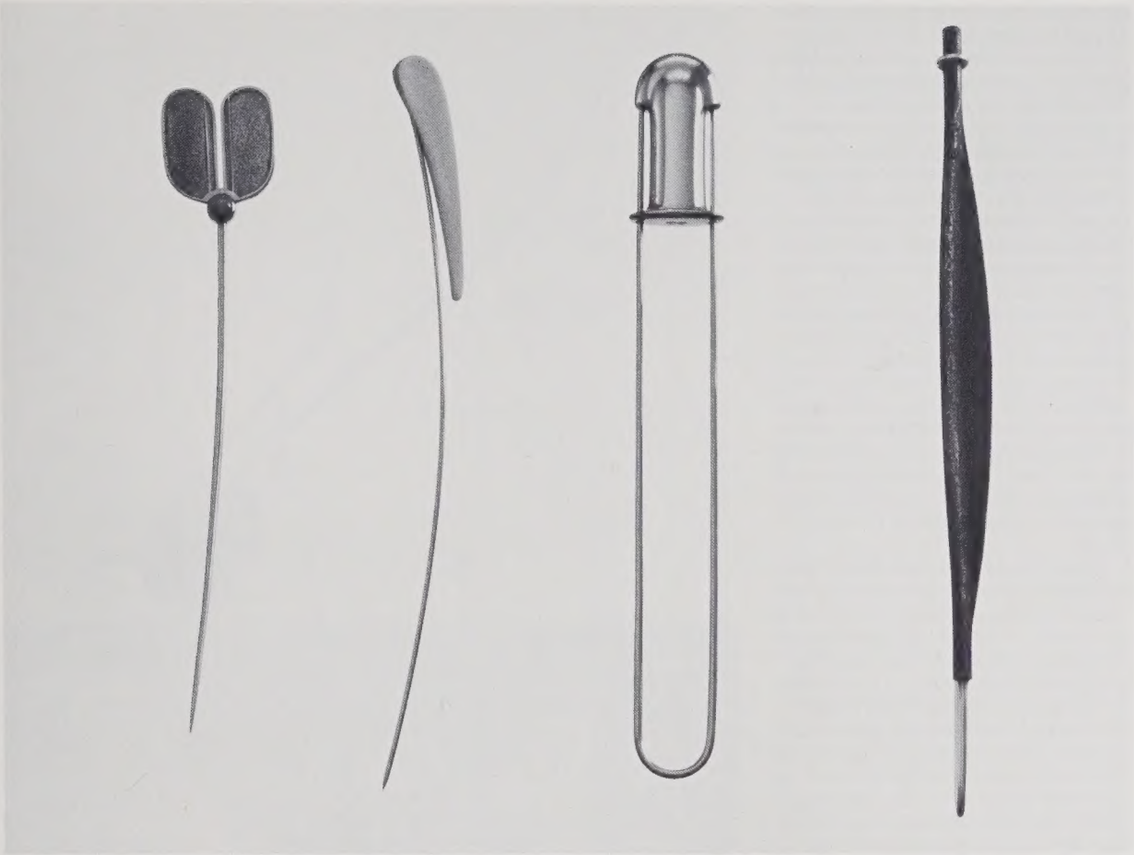
The jewelry presented a clear contrast to the sculptural and expressive pieces. Most of it was designed expressly to be worn rather than to make a statement. The key word here was design, rather than expression.

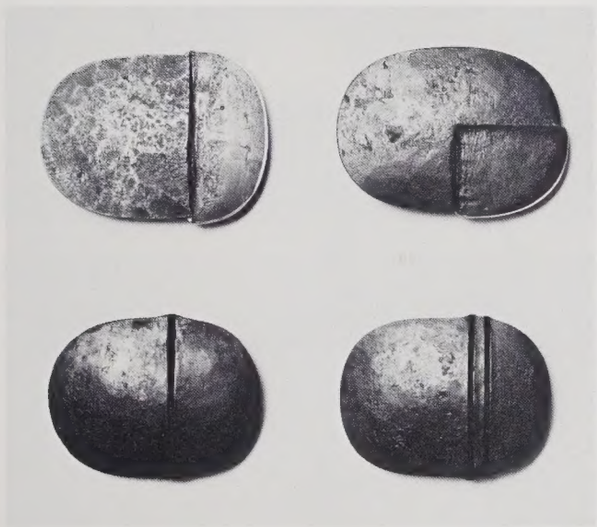
Sharon Church's entries exemplified the tendency toward design. Her pieces, a pendant, a bracelet and three brooches in sterling gold and wood were all attractive and accessible, if conservative. Bob Ebendorf's set of nine brooches in copper, silver, gold and brass, with heavy use of patinas, were all designed around a common motif and displayed as a unit. They were light, small, colorful, pleasant to look at and wear and not

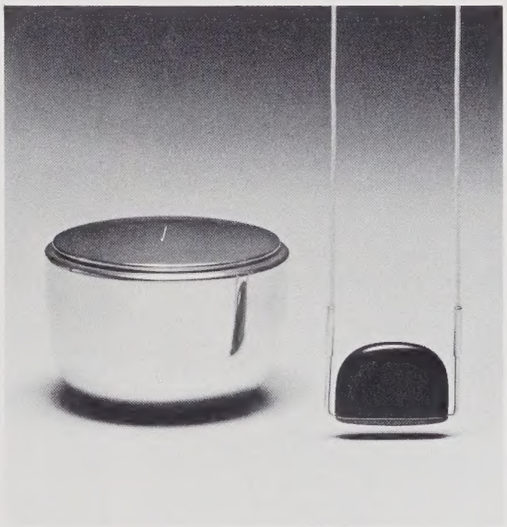


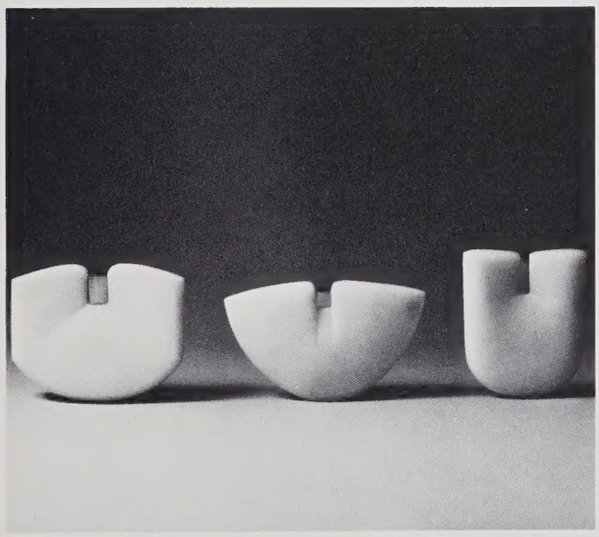


**Top:** Gary S. Griffin, *Construction 80-2*, aluminum, acrylic paint, 18x6x6", 1980 **Above:** Carol Kumata, *Wrappings II*, metal, stone, straw, paper, 12x15x3", 1979









**Top:** (left to right) Sigrid Delius, stick pin, gold, plique-à-jour enamel; Elisabeth Holder, stick pin, gold, porcelain; Johannes Kuhnen, double needle, silver gold; Herbert Schulze, stick pin, iron, gold **Center left:** Herbert Schulze, brooches, forged iron, gold **Center right:** Johannes Kuhnen, pendant, colored anodized aluminum, silver; (left) box, silver **Above left:** Elisabeth Holder, brooches, marble, gold **Above right:** Sigrid Delius, stick pins, gold, plique-à-jour enamel, a variety of precious stones

especially daring. Helen Shirk's three bracelets combined fine workmanship, eminent wearability and the crisp, angular, refined sense of design one has come to expect from her.

Perhaps the two riskiest jewelry pieces were the neckpieces by Sandra Parmer Zilker. Her "Layered Neck Piece" had a pendant section constructed of layers of roller printed and reticulated silver and gold set with a diamond. Where it lost strength was in the neckpiece, constructed of thick clear plastic tubing with a heavy silver wire neck ring inside. I saw little visual relation between the ornament and the neckpiece, making the combination feel contrived. Her "Pink Neckpiece" was a collage of sections and bits of pink plastic, pink stones, pearls, silver and gold plate. Although gaudy, nearly tacky, it came off successfully as a whole.

A few words about some other objects. There were two of the now ubiquitous but well-made mokume-gane bowls by Marvin Jensen. There was surprisingly little use of plastics as dominant materials or dominant image, the exceptions being work by Daniella Kerner and Stanley Lechtzin. Kerner's "Dream Container" was solid clear plastic (8 x 8 x 8"). Within it pictures of a wispy female form passed through mists, reminiscent of movie dream sequences. Lechtzin's brooch "Cameo Corsage" of electroformed silver gilt and cast acrylic with numerous pearls was very large (6¼ x 3½ x 3") and seemed to manner the baroque forms he has dealt with in years past.

The Brockport *Metal Invitational* can be seen as a paradigm of directions now being pursued in the metals field as the pieces entered were the choices of each individual, not a juror or committee of jurors. Though it lacked the quantity of *Young Americans: Metal,* it similarly showed our diverging currents. I felt that as a group the strongest was the sculptural work. However, if this type of work is a trend at the university level, it raises the question of where the metalsmithing field, once dominated by silversmiths and jewelry makers, is now moving. Have the jewelry makers been relegated to a second-place position? In times of troubled economy, is it self-indulgent to be making essentially nonsalable or marginally salable work in the name of sculpture? I do not suggest answers to these questions, but pose them as matters I feel now need to be considered.

**Schmuck, Geraet—Jewelry, Objects**
Detmolder Schloss, Detmold, Germany
November 2–30, 1980
by Ann Grundler

An historic castle was the elegant setting for a show of four accomplished German goldsmiths. To reach the exhibit, one passed through the gatekeeper's chamber and crossed the courtyard. For the event a lecture was given in the castle's chapel followed by a reception in the private quarters of the Prinz of Lippe.

Professor Sigrid Delius teaches at the Fachhochschule in Dusseldorf, and Elisabeth Holder, Johannes Kuhnen and Herbert Schulze all studied with her at one time. However, this was not a grouping with a depen-

dent teacher-student relationship. All had respectable shows and awards in- and outside of Germany to their credit.

Sigrid Delius showed brooches in silver with gold, small containers in silver and mostly blue enamel over copper sections and strong plique-à-jour enamel stick pins in gold with precious stones.

In Germany, more and more iron, cast and forged, is being used as material for jewelry. Elisabeth Holder showed models of thin copper and silver sheet stretched over steel cores, brooches in cast iron with delicate lines of gold laid into the iron at raised points and doughnut-shaped cast iron objects, some in bronze and one in patinaed silver. She also showed three brooches in marble, with accents of gold.

Johannes Kuhen combined silver and anodized aluminum to make bracelets in silver with blue aluminum sections attached, necklaces with aluminum and fine connections of silver wire, tubing and fox chain and elegant containers in sterling and aluminum with some fabrication.

Herbert Schulze also showed work in forged iron. Four brooches were accented in gold. The material of two iron brooches was forged and spread to one side, producing an elegant flow. His forged silver bowls looked substantial but not plump.

**The Art of the Blacksmith**
Gallery of Contemporary Metalsmithing, Rochester, New York
January 24–March 14, 1981
by Jeff Krolick

It was a curiously egalitarian exhibition which gallery manager Deborah Norton mounted. If the constituency of the blacksmithing art as it is practiced today was fairly represented, it was because this constituency had, one and all, been included in the show. The problem with a fledging revival of the sort blacksmithing is now experiencing is not, as might be expect, an exclusively esthetic one. The real rub here is self-identity, and the value of a broad spectrum representation of blacksmithing lies in the opportunity it affords us to determine the common bonds which are the core and essence of that art.

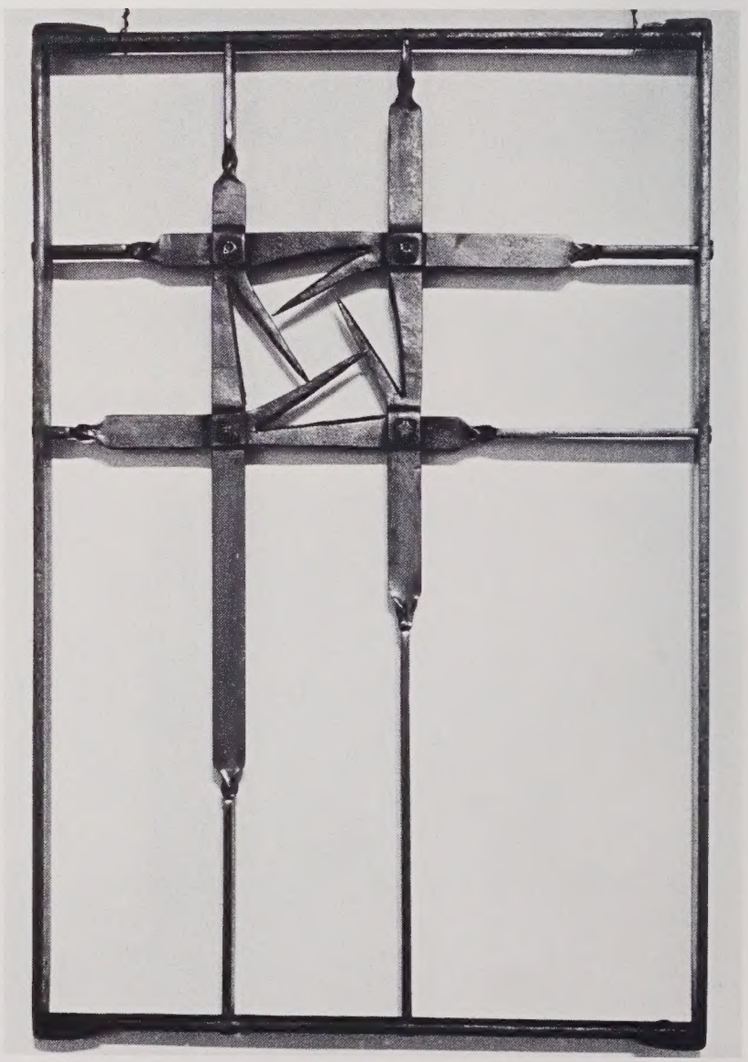
Generally, there were four pervasive qualities I perceived in the body of work. They were: fire, lust, physical labor in the pursuit of utility, love of the undulant black line and fascination with historical form and technique. This last, admittedly, reflects an expectation I harbor which has to do not just with blacksmithing but with the art scene as a whole. The expectation is that each craft and art must address the problem of how to preserve its essential values while continually redefining its parameters and limits. It is no longer enough that blacksmiths, reveling in their fire lust, produce naively conceived artifacts as by-products of an obsessive preoccupation with tradition and technique. Those blacksmiths who have most interestingly addressed the problem of stale iron will be the focal point of this review.

Albert Paley's work embodies the same basic blacksmithing values as the most historically derivative pieces in the exhibition. The difference is evinced merely through his vigorous activity of continually changing the boundries and limits of his creative sphere. Paley says his work, "reflects the plastic state of the heated metal. The organic cause and effect of change and alteration is recorded in this frozen state. The change of temperature merely arrests the movement inherent in the malleability of the steel." Fire lust, physical labor, the undulant black line, these qualities are obviously present and of great concern in his work, as is an historical appreciation of stylistic influences. However, an overwhelming preoccupation with them as symbols of change, alteration, movement—the perpetual flux of things—is the seminal power behind his genius. The physical object is, for him, the crystallized record of the creative flux at a particular point in time and he refers back to it continually in a dizzying spiral.

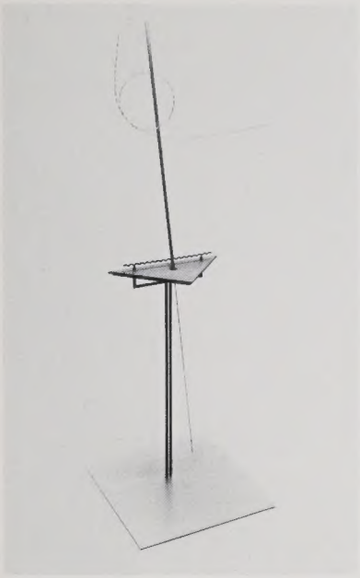
Scott Fredenburg was the underachiever of the show. His work is technically simple, almost crude. He is not concerned with the technical tour de force. Unlike Paley, who uses grinding and welding in addition to traditional forming techniques, Fredenburg, in his series of four pieces, called "Iron Images," has actually rejected all but the most basic forming and construction techniques. Fire has been minimally applied to the flat bar stock to facilitate simple 90 degree twists, bends and chisel-cut spikes. He does not love the undulant line either. There is little evidence of forging in any of his pieces. And, as if that wasn't enough, he limits himself to working within the confines of rectangular formats.

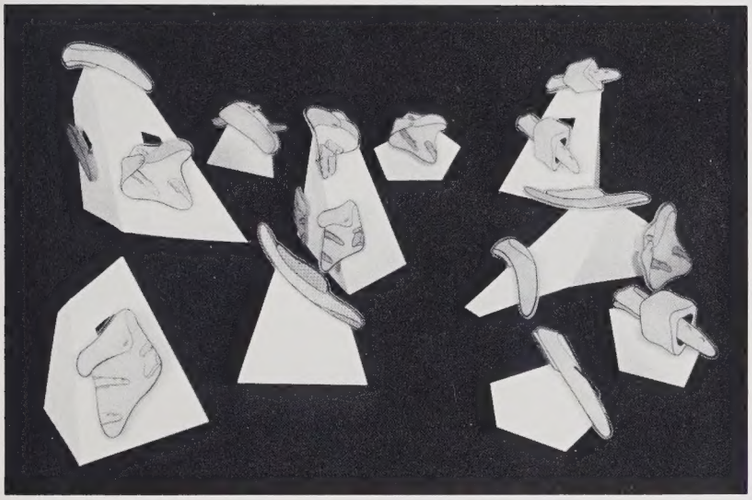
The only thing besides wearing a hair shirt for which Fredenburg betrays an excessive fondness is boldness. Iron images are bold statements of iron sensibilities pared clean down to the bone. Their esthetic success is the disarmingly simple but ingenious solutions to the design problems he imposes. The dynamics of their emotional impact, however, are more complex. Like it or not, blacksmithing is fraught with symbols which are beyond its power to repress. Simply by choosing to pursue the discipline of blacksmithing, the smith has indirectly opted for a rejection of many contemporary values centered around the machine esthetic while embracing a dedication to historical blacksmithing principles and techniques. Every time a blow is struck to reform that basic blacksmithing staple—bar stock, smooth, straight perfect and ultimately civilized—violence is symbolically done to those values which the stock represents. This reform process is carried by most smiths to its ultimate conclusion. The rational is transformed into the irrational, sensual, undulant black line and the violence is sublimated and lost in the process.

In Fredenburg's series, the cool violence of the spikes and twists is at one and the same time derived from, contained by and opposed to the rational grid and rectangle order inherent in the raw bar stock. His violence is up front and his power lies in the clean, tense image that is created when the violent and the civilized are prevented from merging. And while Fredenburg has severely reduced blacksmithing to its barest essentials to better stress his minimal conflict, the four lovingly crafted and individually unique rivets in one piece evince the irrepressible joy he finds in his craft, a joy which is



**Top:** Brent Kington, *Icarus*, steel. Photo: Chris Gambrill **Above:** Scott Fredenburg, from *Iron Image* series, steel. Photo: Don Brown





**Top left:** Gary S. Griffin, *Construction 80-1,* aluminum, copper, steel, acrylic paint, 36x12x12" **Top right:** Gary S. Griffin, *Construction 81-1,* steel, acrylic enamel, 72x12x12" **Center:** Amy Davison, *City of Pins,* plastics and drawings, each pin 3–4" **Above:** William Neumann, *Pendant,* mokume gane. Photo: Joyce Edwards

wonderfully and maximally irreverent because of its subtle intrusion where one would think it is not wanted.

The only smith in the show who incorporated humor and a splash of color in his work was Ivan Bailey. As a lover of paradoxes and double entendre, I find Bailey's Vegetarian Snack to be more than just another midnight foray in the ice box. Even though these asparagus spears are painted green and white, their steelness, which is the crux of the joke, is only emphasized by the paint. On an anecdotal level, I can imagine Bailey coming to terms with an herbivorous ex-lover through this thinly veiled, score-settling repast. In the diversity of his other work, which ranges from a delicate, Japanese-inspired ginko-leaf hinge and doorknob set to an unabashedly naive and folksy tong and poker set, one feels the autobiographical importance, however obscure, which these objects have for Bailey. The force of his personality allows him to successfully employ such a wide range of styles.

My point about fire lust is particularly well illustrated by pieces 12 and 14 in Brent Kington's Icarus series. These pieces stand out because they have seemingly little to do with blacksmithing. While presumably forged, the lines are not undulating and the color is not black. A great deal of attention has been paid to the surface texture and its delicate grayish brown coloration. It hardly seems to matter that steel is the medium. The thing that grounds this work in blacksmithing is the fire lust attached to the name of the series, based on the myth of Daedalus and Icarus. It seems that Kington could only deal with the matter of fire lust conceptually, outside of the blacksmithing context. And, like Icarus, his drive toward the fire, as demonstrated by his continuing interest in it through 13 pieces, is irresistable. (Being so close to possible incineration, Kington has, I assume superstitiously and wisely, chosen to ignore the hole in his series between number 12 and 14.)

Maybe blacksmithing is, at base, the moth's love for the flame.

**Amy Davison and Gary Griffin**
Greenwood Gallery, Washington, D.C.
March 5–28, 1981
by Gretchen Raber

Greenwood Gallery has again provided the forum for two approaches to the American Image. The exhibition of work by Amy Davison and Gary Griffin, both professors at Rochester Institute of Technology, cut across the discussion of craft versus art because it was predominantly sculpture. The work differed in imagery and material; however, there was a cohesiveness, a look of confidence and a seriousness that comes with an in-depth concern with one's artistic and intellectual statement. Both artists' strong technical background allowed them the freedom and sometimes lyrical magic to express in their chosen materials succinct thoughts. Master craftsmanship of materials transcended itself to become an esthetic entity.

Most joyous about Amy Davison's work was the completely controlled expression of her personal and, I believe, national identity. Plastics, graphics, resins were combined in a harmony of color, surface quality and shape. The Davison images were her own synthesized fantasies, which were combined with cartoon animations, influenced by the work of Jean Folon, Joseph Cornell, Red Grooms and the Disney Studios from 1935–1960. "City of Pins" was a stage for the animated antics of her figures, just as that which a film format provides for cartoons. In the piece "Sculpture with Detachable Pin," the candylike surfaced sheet forms of cast epoxy resin were superbly married with the patterned imagery of the cartoon shoe forms. Pastel colors enhanced the graphic and tactile quality of the plastic. Other graphic devices, such as "cropping" and "bleeding" shapes to the edges of the plastic, and humorous plays on images, where tongue forms protruded from formula locations contrapuntally with abstracted shoes, were used.

Amy Davison has mastered a total communication of her cultural background. She brings to us a vast strength and an exceptional esthetic. To see an American actually drawing from the vastness of our cultural identity and by invention metamorphosing the graphic, sculptural and media considerations is as magical as it is rare.

In this show both artists were united by their expressions of their personal identity. Gary Griffin has evolved from his technocratic work of three years ago. The constructions shown here were reflections of new perceptions—"industrial landscapes," "mechanical" and "redundant." They presented comparisons and contrasts: rust versus hard polish, paint versus raw surface, the casual versus the obsessed form, absolute positioning of an element juxtaposed to the less predictable, the "awkward." Griffin feels that "good design is too easy." He is searching for a new esthetic, concentrating on concept. The play of the rational and the irrational, as illustrated in "Construction 80-5," contrasted the mannered, constructed thornlike legs with a dish of metallic detritus. The intention of attention grabbing jarred the traditional viewpoint. The viewer was forced to ask: "What is this junk doing on this sculpture?" "Is something out of place?" "What's place?"

In two of the most successful pieces "Construction 81-1" and "Construction 80-1" exquisite passages of visual elements encompassed space by metal line drawings. Almost all the pieces were enriched by eclectic gatherings of metal, plastic, wood, paint, rust and so on. There was a conscious effort to be "excessive" and "decorative."

Griffin's work seems to be in transition with explosive energy and, for him, pushing new frontiers. Additionally, his work evidences a most important aspect, shared by Davison, that of deriving energy from an inner iconography.

**William Neumann: Metalwork and Jewelry**
Davis Art Gallery, University of Akron, Akron, Ohio
January 19–February 6, 1981
by Joseph McCullough, President, Cleveland Institute of Art

This exhibition was the result of a sabbatical leave of the sort that is so important to the dedicated teacher/craftsman—the opportunity to enjoy an uninterrupted period of work. At first glance, the small scale of the work might led one to the erroneous conclu-

sion that the year's work was not a significant effort. One must look carefully to appreciate the painstaking craftsmanship involved, reflecting many hours spent in such time-consuming processes as gold granulation.

Throughout his adult life, William Neumann has demonstrated a singular dedication to design and craftsmanship, from his undergraduate studies at the Cleveland Institute of Art in the late 1940s to the work done during his recent sabbatical leave from the University of Akron. The 18 years between his B.F.A. and M.F.A. degrees were spent studying and working in this country and Denmark, Sweden and Colombia, before completing his graduate work at Syracuse University. He headed his own design firm and taught industrial design, ceramics and sculpture. He has been active in the American Craft Council, the World Crafts Council and he is an officer of the Society of North American Goldsmiths. He has traveled extensively to lecture, conduct workshops and view historically important craft exhibitions to benefit his own work and teaching.

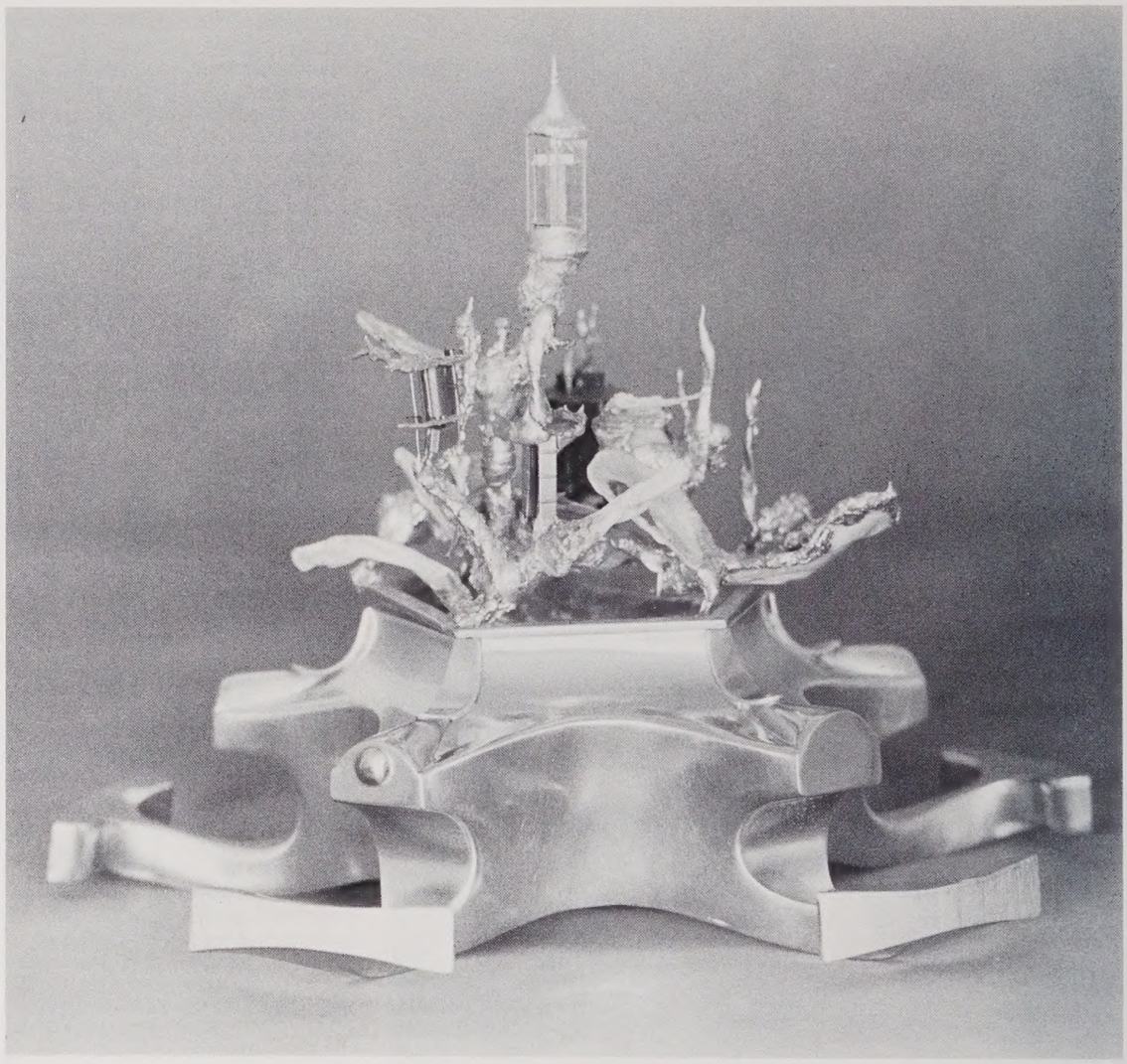
William Neumann's work demands of the viewer more than a cursory glance. His time was well spent and the work shown was of great importance to his students, his colleagues and the Akron community.

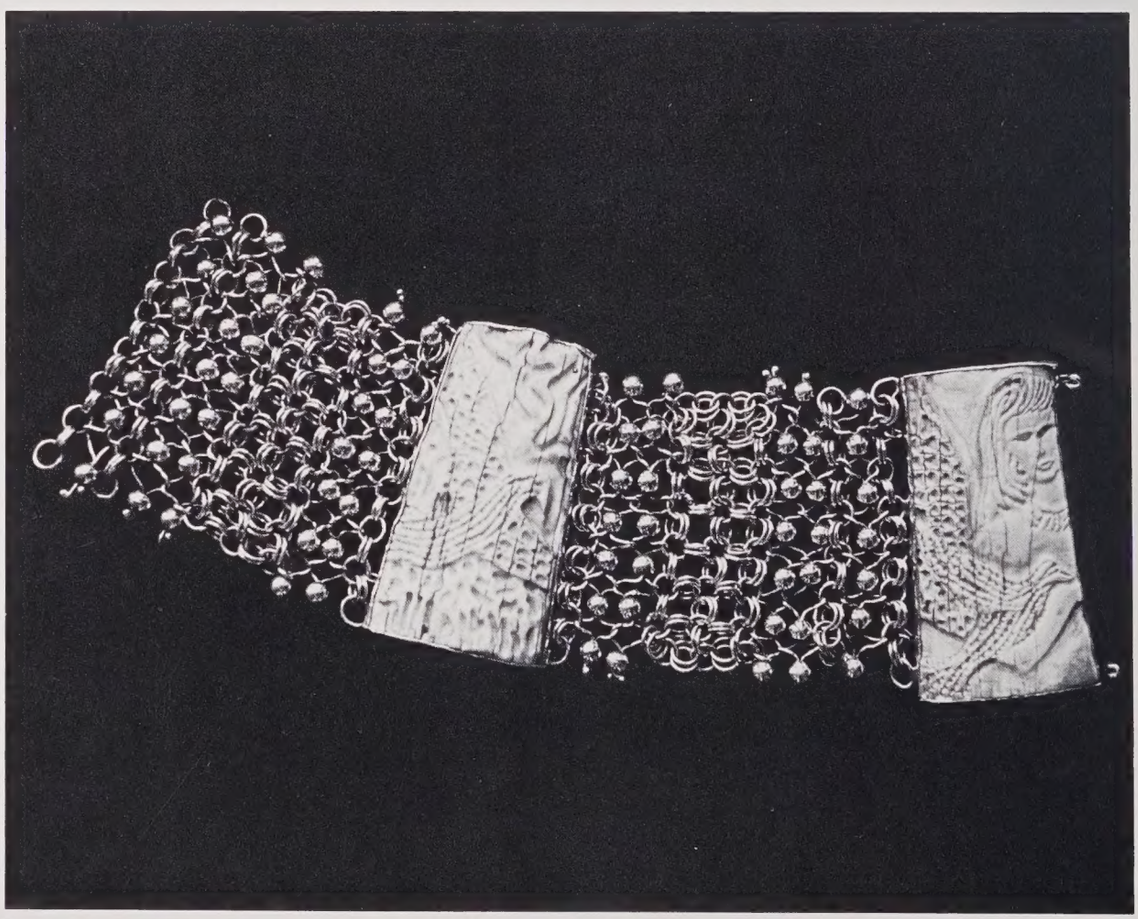
**Secrets of a Master Craftsman 1100–1981**
Hammond Castle Museum,
Gloucester, Massachusetts
March 1–May 31, 1981
by Naomi Kline and James Seavey

The Hammond Castle Museum was built in the 1920s by the American inventor and collector John Hayes Hammond, Jr. Conceived as a medieval castle, it incorporates sections of buildings and artifacts Hammond brought back from Europe. It houses his collection of medieval objects and an 8,600 pipe organ of his own design. Although Hammond established the Museum as a nonprofit corporation during his lifetime, it is only with the recent addition of professional staff that it has begun to be established as an important cultural resource.

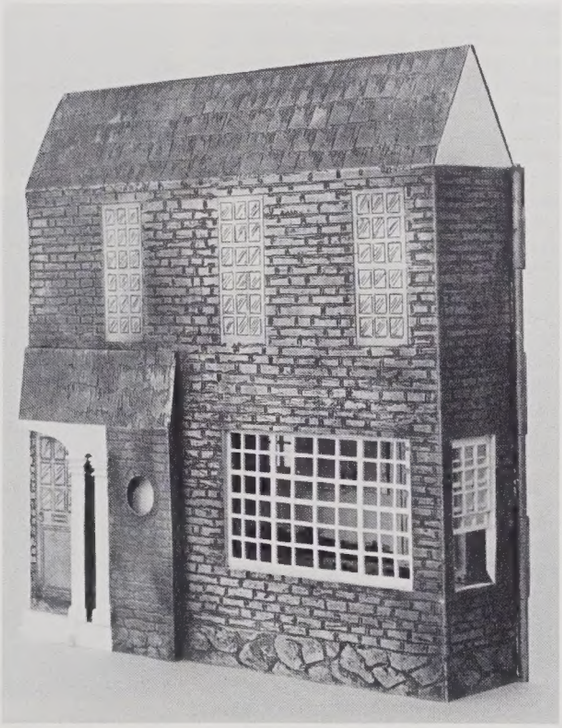
The Museum's most important asset is the Castle itself, a perfect showcase for its remarkable collection. This exhibition represented the Museum's first attempt to utilize major loans from other institutions, including the Boston Museum of Fine Arts, the Museum of the Rhode Island School of Design, the Wellesley College Art Museum and the John Woodman Higgins Armory.

Specific medeival objects and tools were chosen to illustrate some of the techniques described by the monk Theophilus in his 12th century treatise *On Divers Arts*. Theophilus was himself a practicing artisan, identified as Roger of Helmarshausen. Since his treatise has an immediacy unmatched in scholarly texts, the Museum, in cooperation with Cape Ann Artisans, an association of local professional craftsmen, exhibited examples of contemporary work made using the techniques Theophilus described. The exhibit was enhanced by craft demonstrations, lectures and a craft fair, which drew on the talents of artisans throughout New England. Thus, a small museum with unusual re-





**Top:** James Seavey, *Dr. Mabuse's Skyland*, pewter, shell, bone, radio tubes, boulder opal, 1980. Photo: Michael Lafferty **Above:** Jayne Gardener, *Angel Releasing Falcon* bracelet, carved ivory, sterling silver, 1980. Photo: K. Squires



**Top:** Merry Renk, *Ursus Californicus* pendant, 24k gold-plated silver, 4x4x1", 1981. Photo: Robert Boni. Collection: California Craft Museum **Above left:** Harriette Berman, *Silver Iron,* sterling silver, carved epoxy resin, lacquer, copper, color xerox, 7" high, 1980 **Above right:** Harriette Berman, *Lucretia Mott Way,* etched copper, lacquer, color xerox, 8x7x1½", 1979

sources was able to enrich its collection by borrowing and to enliven an exhibition of historical material by relating it to forms of contemporary expression.

The artisans were chosen for the range of techniques they use and each selected objects from which the exhibited works were drawn. Barbara Cataldo exhibited "The Invisible Dancers," a stained-glass work in which the artist made the glass sheets from which the panels were cut, thus maintaining expressive control. George Faddis exhibited examples of his widely acclaimed cloisonné and champlevé enamels, "Carnival" and "Symbol of St. Luke." A student of Theophilus and other medeival scholars, as well as a skilled and expressive goldsmith, Jayn Gardener contributed "Interlace" and "Angel Releasing Falcon," examples of carved ivory set in precious metal, "The Novocain Kiss," fabricated and repoussed and several other objects using various techniques. Candace Kelly's finely worked and colorful books "Rakka" and "Flight of Fantasy" provided examples of excellence in illuminated calligraphy with an emphatically contemporary mode of expression. James Seavey's "Sands of Time" of spun, fabricated and cast pewter was set with functional buttons, switches and a digital readout, and "Dr. Mabuse's Skyland," a futuristic container set with sea-worn fragments of shell, bone, old radio tubes and a boulder opal, exhibited a complexity and diversity of technique favored by Theophilus in his work as an artisan.

**Merry Renk, Jeweler**
California Crafts Museum,
Palo Alto, California
March 17–May 10, 1981
by Sally B. Woodbridge

This "visual biography and retrospective" covered 34 years, 1947–1981, of Merry Renk's professional life, presenting the rich variety of the artist's imagination with over 100 pieces of jewelry. The exhibit included photographs from these years along with nonjewelry works, such as larger scale metal sculpture, pencil portraits of friends and family and drawings on ceramic plates, enabling the viewer to integrate the artist's life with her work.

Plique-à-jour enamel, folding, interlocking and "V" forms run through Merry's oeuvre, whether in rings, earrings, pendants or hair pieces. Mostly abstract in the work from 1947 through 1971, these forms become more naturalistic in the later work. Many of the interlockfing forms move, come apart and recombine, echoing nature's ways. One of the most outstanding of these interlocking creations was the 1969 "Wedding Crown," commissioned for the Johnson's Wax exhibition *Objects USA,* and now in the permanent collection of the American Craft Museum.

Following a 1967 accident that took the vision in her right eye, Renk has manifested the understandable preoccupation with her inner and interpersonal world that often follows a traumatic experience. Encouraged by her ceramist husband, Merry began drawing with oxide pencils on porcelain plates. The portraits reveal her concern in a range of expressions, most delightfully in a self-portrait bearing the legend, "Congratulations, Merry Renk, Jeweler 1947–1972."

The drawings led to more realism in her jewelry and frequently to a subtle use of wit. The cumulative impression of the show was one of lightness—levity may be the better word—that pervades Merry's work. Even the more massive pieces, such as "Ursus Californicus" and "Arizona Conference" conveyed the buoyancy of the artist's spirit.

**Statements in Metal**
Precious Objects Gallery,
Los Gatos, California
February 1–March 7, 1981
by Nena Montgomery

Harriete Estel Berman's show was a demonstration of her technical skill and gift for ingenious construction. The six pieces in the show varied from the triangular, heavily romantic "Gazebo Fantasy" with its Rococo elaborateness to the straightforward, bare-bones "Hanger-Closet," a plaster and wood construction that resembled an architectural structure in its precise use of materials.

Trained primarily as a metalsmith, Berman does not limit herself to the materials of that medium. Color xeroxes made from old lithographic images and laminated in plastic help create a nostalgic sense of fantasy in "Conch Dreams" and "Secret Reflection."

The bulk of this show consisted of folding pieces that beautifully and intricately opened out to multilevel miniature scenes. They were small worlds unto themselves that had to be viewed from all sides to appreciate the visual puns and perception-altering tricks. Humor played a large part, as parodies of woman depicted in 19th-century settings were juxtaposed to bucolic images and fanciful starry skies. The pieces were meant to be enjoyed, not taken too seriously. "Lucretia Mott Way" depicted the interior of a lively apartment on the first floor and an empty apartment on the second floor, indicating the artist's exploration of personal images.

Since the show consisted primarily of fantasy pieces, the inclusion of the stark, almost all-white "Hanger Closet" was unfortunate. While the range of pieces and styles attested to the artist's ability to successfully deal with such a wide range of concepts and materials, the shift in esthetic emphasis was too abrupt.

In some of the artist's other work, the flatiron took on an enhanced quality as a symbol of domesticity. One piece, not seen in this show, was a surprise in that what looks like an ordinary iron opened up to depict a woman (the artist) at an ironing board with a hammer in her hand. The multiple ironies here were readily apparent. Berman's work bears up very well under a second and third exposure, which this viewer has experienced. Her series of pieces along several different themes have an ability to continually delight and surprise both the eye and the mind.

**John Fix: Jewelry**
Tomlinson Craft Collection,
Baltimore, Maryland
November 6, 1980–January 5, 1981
by Tom Supensky

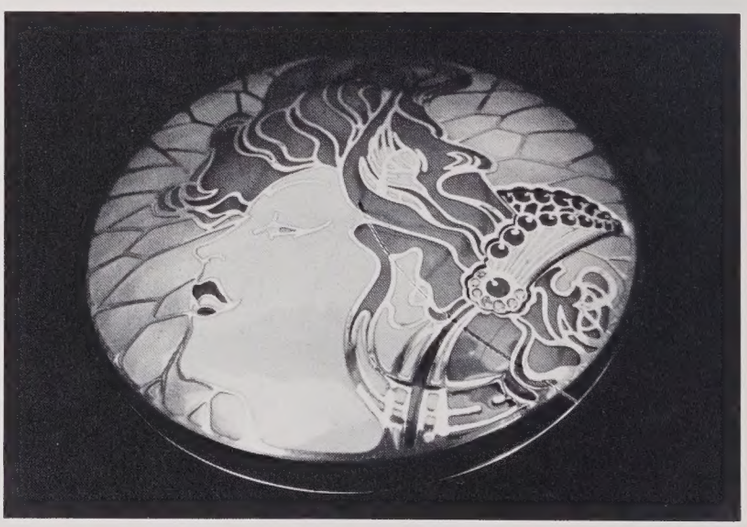
Approximately 70 works were on exhibition here in a variety of media, including rings, bracelets, buckles, necklaces, vessels and lamps. Most of the work was done in silver with some gold and semiprecious stones, as well as some wrought iron.

At first glance, the overall show felt like just another jewelry exhibition, but after a few minutes of closer observation it became apparent that Fix had a personal characteristic that set his work apart from the commonplace. His work exemplified the true sense of the word "hand wrought." Each piece was unique, without any feeling of mass production, which gave it a very personal, individualistic character. Fix manages to be an excellent technician without letting the technique be the main aspect of the work. One dominant theme was the "pig tail," which at times became gimmicky. Where it related to the function of the piece, such as at the hasp or at a connection point, it served well, however. In pieces where the "pig tail" did not exist, such as in the two small wine goblets, there appeared to be more attention to the overall form, thereby strengthening it. The goblets, asymmetrical in a subtle way, conveyed warmth and invited one to hold and use them.

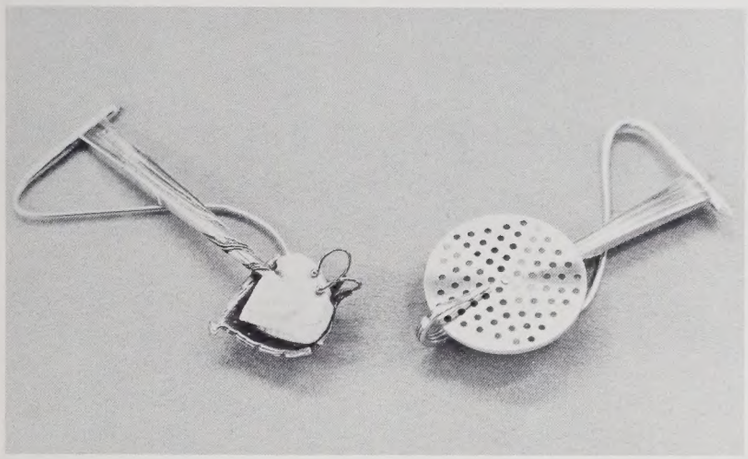
**Metal and Enamel: A Juried Exhibition**
Greenwood Gallery,
Washington, D.C.
February 5–28, 1981
by Gail M. Goldman

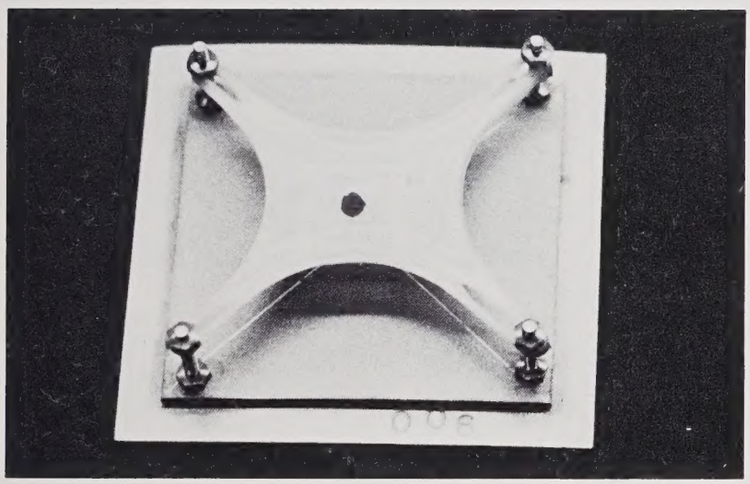
This exhibition featured the work of accomplished metalsmiths and enamelists who had participated in the Gallery's workshop program. Forty works in metal by 23 students were chosed by juror Ronald Hayes Pearson from the 139 pieces submitted. Greenwood's efforts to respond to the enthusiastic support from the metalsmithing community through sponsorship of a major exhibition is applauded and gratefully acknowledged.

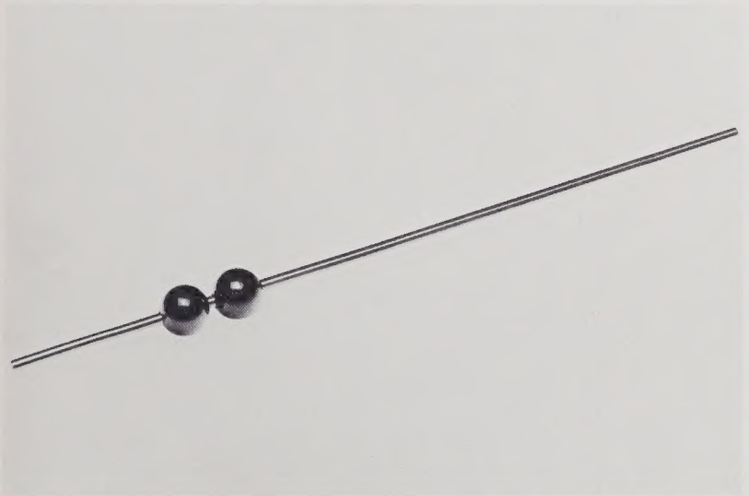
The range of work represented here was relatively broad and the quality of craftsmanship consistently high, making the task of selecting exceptional pieces to feature in this review an easy one. The strongest pieces were impressive not only in quality of design and execution, but in the novelty of conception in relationship to other contemporary metalwork. Betty Helen Longhi of Seaford, Delaware formed and forged a neckpiece and base of bronze, sterling silver and jade tusk shells. "Sea Creature" was constructed of conical shell forms that grew from a hollow stem, creating a telescopic effect, further accentuated by the curvilinear structure of the total piece. The neckpiece was beautifully integrated with the base, both technically and esthetically, exhibiting its strength as a free-standing sculpture. "Subterranean," two shell-formed elements with forged wire inlay, were created by Ronald Wyancko of Port Republic, Virginia. Constructed of copper, brass, bronze and sterling silver, the pieces interacted to suggest a subtle animation of form. John Caro of Annandale, Virginia presented a refreshing and intelligent integration of good design and innovative technique in "Mystic," a pendant of fabricated 14K white and rose gold, moonstone and enamel. Suspended on a silk cord, the piece incorporated a moonstone encircled with forged wire, below which the vibrant colors of the enamel reflected off concave surfaces of a filed vertical rib onto a highly



**Top:** John Fix, forged necklace, sterling silver with amythest, tourmaline and aquamarine, 9" long, 1979 **Center left:** John Fix, kerosene lantern, brass and copper, 24" long, 1979
**Center right:** John Caro, *The Mystic* pendant, 14k white and rose gold, moonstone
**Above:** George Wise, *Pillbox*







**Top:** Kim Jefferies, teapot, creamer and sugar bowl, brass with rosewood handle, hinged lid, 40x45cm **Second from top:** Louis Tortell, *Looking for My Heel* brooches (detail), copper, silver, gold and assorted materials, 8x4cm on 27x27cm frame **Third from top:** James Evans, *J E009* brooch, stainless steel, wrapped brass wire, nuts and bolts, 3.5x3.5cm **Above:** Etienne Peret, brooch

polished surface. The work was energized through the crystallike illusion it expressed. George Wise of Haddonfield, New Jersey constructed a pillbox of sterling silver, cloissoné enamel, acrylic and diamonds. The enameled top featured an art-noveau profile of a woman's face surrounded by flowing tresses. The mechanism for opening the box was intriguing. The top rotated on a concealed hinge, and the hair comb (a spring) remained stationary while the top opened to reveal compartments defined by sterling separators radiating from the central axis. Other area metalsmiths of notoriety whose exceptional work was represented in this show include Stuart Golder of Stout, Ohio, Gretchen Raber of Alexandria, Virginia, Belle and Roger Kuhn of Bethesda, Maryland and Komelia Hongja Okim of Rockville, Maryland.

Ronald Hayes Pearson believes that a juror has the responsibility to look for excellence in the execution and conception of the work and to understand how those elements balance each other. Too often a good idea is ruined by poor execution, and vice versa. Pearson looks for fresh statements, not a reiteration of old ideas. He was genuinely impressed by the work submitted, adding that it was not difficult to select pieces of the highest quality for exhibition. Questioned about the subjectivity that inevitably is reflected in a show that employs only one juror, Pearson acknowledged that he is stylistically drawn toward forged pieces, but only if they are the finest, meeting his criteria for quality design and execution. A small selection of Pearson's work accompanied this exhibition.

**The Medium is Metal**
The Ontario Crafts Council Gallery,
Toronto, Ontario
March, 1981
by Jennifer Place

The Metal Arts Guild, an affiliate of the Ontario Crafts Council, was founded in 1946 to support the industry through meetings, a newsletter, lectures and demonstrations by visiting craftsmen and an annual juried show, that theoretically represents the best of what Ontario has to show in metal each year. This year is the 35th Anniversary of the Guild, which made it especially unfortunate that the jurors (Theo Janson, Hart Massey and John Jauquet) found it necessary to include a statement in the catalog saying that although the two top awards were given, it was with reservation in both cases and it was felt that none of the entries deserved the awards unequivocably. It was unfortunate because it once again raised the questionable merits of juried shows, and the merits of prizegiving. Presumably the jurors were judging against previous Guild shows or against work shown elsewhere, rather than that within this year's show. If the issue must be stated in the catalog, it would have been helpful to know more about the criteria, and it also might have been preferable to simply not have given the awards this year.

The show, although uneven in scope, did include some fine examples of wearable jewelry and technical excellence in a variety of styles.

The work of Louis Tortell won the Best of Show Award for technique. His major piece, entitled "Looking for my Heel," consisted of two mixed-media brooches that rested, like parts of an abstract landscape, on the surface of a framed background. One could hang the entire piece on the wall and remove the pins for wearing. The concept was supported by Tortell's ability to combine copper, silver, gold, ivory, bronze and precious stones in a small format with great imagination.

James Evans won the award for design innovation. His major piece, entitled "The Endless Manipulation of Words," consisted of nine brooches, each small square shapes, mounted on a line on dark paper, and, again, set in a frame. But here wearability had to be questioned. Each brooch was made from a sheet of silver covered by a smaller sheet of stainless steel held in place by four small brass bolts. Each brooch then held a different latex elastic or wrapped brass wire configuration stretched between two or more of the bolts. The latex shapes were simultaneously strong and fragile, permanent and transitory.

The rest of the show separated into the two major categories: traditional combinations of gold and jewels forming rings, pendants or bracelets, mostly small in scale and very well made, and, second, some more interestingly designed pieces in less precious metals and materials that included some holloware, a sculptural knife by Adam Smith and a sculptural collage.

Some pieces of particular interest were Maude Weisser's bracelet of sterling cast links hinged with gold ball rivets that moved like the bones of an animal's tail, Rick Wilson's tiny, perfect yellow and white gold trumpet with movable valves, J. Maureen Wilson's Brooch combining sterling, copper, pink tourmaline, ivory and blue mother-of-pearl buttons in mystical shapes and Ann Barros's titanium and silver cuff bracelet, which were sturdy, simple and stark.

**Etienne Fine Jewelry**
Camden, ME
February, 1981
by Karen Jordan

The ambience in this new shop was in keeping with the elegance of the jewelry on display—inset cases, indirect lighting, gray carpet and suede walls.

The first show was a survey of what is being produced in Maine. Etienne told me that he invited every jeweler he could find, the only criteria for inclusion was that the jeweler be a full-time professional. Ideally, the collection would have brought together Maine jewelers and their work for each other to see. Though most of those invited sent something, some sent a few unrepresentative samples, others did not come to see the show at all. I understand the February doldrums and our self-depricating isolationist undercurrent, but I was surprised that anyone would have passed up the opportunity. There was even a great party with lots of food as an added incentive.

Philosophically, the show was a cross-section of world-wide artistic trends. Fred Woell's pieces, freest from the dictates of the marketplace, were timeless social commentary and humor. Michael Good's hollow-formed spiculum production work, on the opposite end of the spectrum, were pure line and ultimately wearable. Etienne

Peret's graphic reflective works were simple statements of point, line and plane, which explored "seeing" with a photographer's eye. Patti Daunis-Dunning showed foil-like earrings, crisp and textured, that reminded me of choix pastry. Ronald Hayes Pearson's works defined and redefined primitive themes and forging.

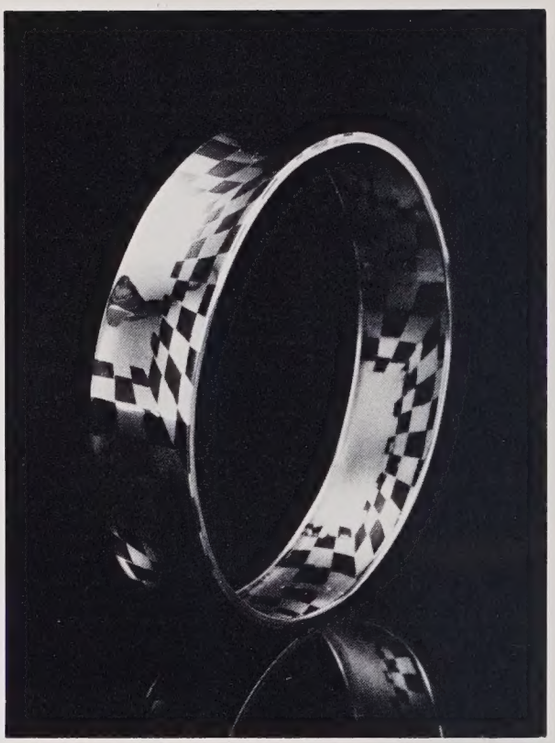
If the "community" of Maine metalsmiths and jewelers had seen the show, they would have learned something about what ties them together and what separates them from each other and that they are in the mainstream of artistic evolution and mastery.

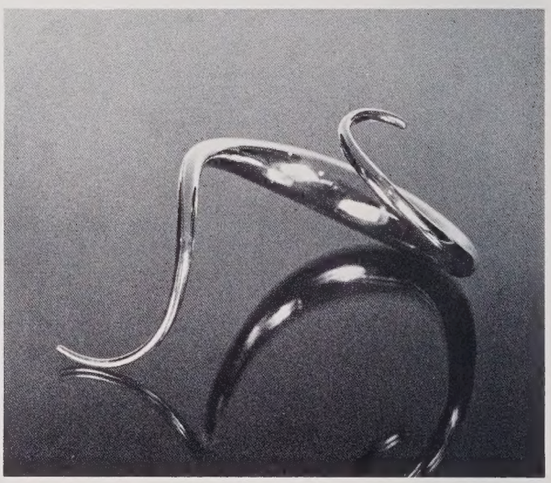
**The Current Metalsmithing of Betty Helen Longhi**
Creative Metalsmiths, Chapel Hill, NC
November 14–December 24, 1980
by C. James Meyer

Betty Longhi, who attended the University of Wisconsin and the Cranbrook Academy of Art, is a freelance metalsmith, now living in Seaford, Delaware. In this show she presented 33 pieces of jewelry, ranging from simple earrings to her "Sea Creature" necklace/sculpture—by far the most dynamic piece. This necklace exemplified the most significant characteristics of Longhi's philosophy about what jewelry should be. Like the artist herself, the pieces were elegant and refined, each crafted to perfection. The metal, a material that is resilient, but ultimately the most plastic, has become fluid, whether on the body or on a sculpture stand. It seemed natural that Heikki Seppä's shell-forming techniques are an important part of her technical vocabulary.

In viewing the pieces I feared that their large scale would make them cumbersome to wear. However, when I asked people to try them on, it was obvious that these details had been well thought out. The pieces, while large and imposing, were lightweight (most were hollow) and fitted very comfortably.

In talking with Betty Longhi and in viewing the work, it was obvious that the creative impulse comes from the material. The elegant linear quality is obtained through the metal processes she most frequently employs, forging and hollowforming, accompanied by her juxtaposition of highly polished metal with natural materials, such as shell, wood, feathers and leather. Her combination of materials, associated with the late 1960s found-object esthetic, was carried off with a level of sophistication that is indicative of how far the field of metal/jewelry has progressed in the last 15 years. This interest in material, as opposed to conceptual or intellectual statement, resulted in an exhibition that was inconsistent in its presentation of visual imagery. Sometimes the imagery was literal, such as in "Landscape 2" or "The Little Black Cloud That Cried," sometimes it was derivative of naturalistic form, but abstract, such as in "Sea Creature" or "Jack-in-the-Pulpit" (it was here where the work was the most successful) and sometimes it was completely abstract, an exercise in form. This inconsistency was complicated by the fact that "The Current Metalsmithing of Betty Helen Longhi" was not necessarily current. While the bulk of the show dated from 1980 or 1979, there were pieces dated 1978, 1977, even 1973. Although there was





**Top left:** Etienne Peret, ring **Top right:** Patti Daunis-Dunning, bracelet **Center left:** Patti Daunis-Dunning, bracelet **Center right:** Michael Good, *Open-Seam Spiculum* bracelet **Above left:** Betty Helen Longhi, *Sea Creature* necklace, bronze, silver, jade tusk shells **Above right:** Betty Helen Longhi, *Jack-in-the-Pulpit*, bronze, silver, jade tusk shells

Carol Rieth, *Shell Castle,* silver, enamel and shell, 14" high. Photo: Glen B. Ward Co.

a correlation between date and style, there were not enough of the older pieces to show personal development. They just seemed to detract from the vitality of the new work.

For the viewer who could see past the inconsistencies, the show had its rewards. The best of the new work reflected the excitement the artist has for what she is creating. If she continues to push the work with such enthusiasm, it can't help but assume a personal position of its own.

**Enamels. Into the New Decade**
Riverside Art Center and Museum,
Riverside, California
January 9–February 7, 1981
by Vittoria Cozzi-Olivetti

Since its discovery in about the 13th century B.C. by a goldsmith in Cyprus, enameling has complemented metalsmithing techniques through the centuries in the production of jewelry and precious objects. The mastery of this technique and the different ways craftsmen have devised to apply its alchemic quality have given magical effects of richness and transparency of color to bare metal forms.

This show, which displayed works by artists of the Enamel Guild West, proved that the art of enameling is still vital and challenging for today's metalsmith. The common denominator in the show was a high level of technical accomplishment in enameling. In just a few pieces the metalsmithing was not of the same high level.

The artist in whose work the three factors of enameling, metalsmithing and subject matter reached the same degree of perfection was Kathryn Gough of Huntington, New York, who received the prize for "Best Total Entry." Her craftsmanship was perfect, and the utter simplicity of the metalwork in the clasping and joining, the subtlety of forging, let the eye focus mainly on the enameled part, with its subtle hues of grays, browns and beige. The silver cloisons were almost invisible, so that at times only the shading of colors defined the outlines within the piece. In the necklace "The Rose," the flower itself seemed to be the portrait of a porcelain rose. There was a beautiful balance of reserve and sensuality. The clasp was an enameled "stone" portraying a leaf in muted dark greens and blues. In another necklace "Inner Flower," the enamel had shades of seal brown to beige with a touch of brilliant red. The same shading was repeated in strands of porcelain beads which held the enameled pendant.

Correen Kaufman of Del Mar, California, showed an excellently crafted and engineered Art Deco neckpiece. In keeping with the mood of the design the colors were flat—gray, brick, light and dark blue. Here, as in Gough's work, there was total integration of design and form. A delightful brooch, also by Kaufman, "Sheep on the Road," reminiscent of Arline Fisch's "Elephant" pin, was simply and pristinely rendered. Three tiny sheep walked in procession along a shiny metal line on a black ground. An enameled "backdrop" on two metal stilts, with a free design on it, fenced in the space. This piece was awarded the prize for "Best Continuity of Imagery, Jewelry."

Delightfully witty was "Sarah's Dream," a pendant by Margaret Con-

way of Los Angeles, California. A central core, flanked by two wing-shaped elements of pale blue enamel, portrayed a cloisonné profile of a "twenties" woman.The elongated neck echoed the contour of the frame and formed a V shape with the suggestion of a lace collar. The hat, crowned by a sort of pine-cone-shaped stone in relief gave the appearance of a female Mercury in "twenties" attire. Conway's second entry "Pink Lady" showed Art Noveau inspiration in a delicately treated head with flowing hair and ribbons, The chain holding the pendant had rows of delicate pink beads which completed the chaste, soft feeling of the piece.

Carol Herman of Alameda, California, showed a neckpiece "Celestial Clouds," where two strands of fine silver tubular chains supported a pendant enameled in pastel tones. The enamel rested on a free-shaped silver base with sharp engraved lines darting out like sun's rays behind a cloud. More interesting and powerful in design and execution was Herman's pendant "Planet of the Sun," where a dome-shaped form burst inside a square frame.

A real tour de force was "Outdoor," a plique-à-jour bowl and plate of traditional oriental design by Mary Takeda of Los Angeles.

Original and inventive was a free-hanging panel by Esther Davies of Oakland, California entitled "Amber Panel." A series of sheared copper shapes, vaguely reminiscent of leaves, were held in place by macramé. The string in turn was carefully wrapped around clear, horizontal plastic rods. The copper elements were enameled in rich, warm "autumn-leaves" tones, enhanced by bright accents of gold. The enamel was fused over the metal in a free "emotional" flow.

Perfectly restrained and controlled was "Oval Box" by Giselle Cook Schmidt of Canoga Park, California. At one edge the beautifully crafted wood box was adorned by an oval enameled plaque centered around an oval stone. Ripples in the stone echoed ripples in the wood and were picked up by enameled ribbon shapes flaring out from the contour of the stone. The enamel had a deep transparency with soft, patchy clouds over the surface.

One of the three examples of champlevé in the show was "Mama"—a welded sculpture in the shape of an upturned bowl, by Hede von Nagel of Redondo Beach, California. The color of the enamel, brilliant, shrieking blues, red and golds, and the intricate, tormented treatment of the metal surface were successfully unified. Masklike with its staring, empty eyes, a mixture of ethnic and German Expressionist art, this piece won the "Best Champlevé" award.

The most successful and brilliantly executed of the "table objects" was "Geometric Repetition" in basse-talle by Cynthia Pardoe of San Diego, California. Like a cribbage board or maybe a divinatory, cabbalistic board, it housed six 2½" squares set in a row in a wood frame. Each of the squares was pierced with rows of tiny holes, as was the minutely engraved background, remindful of Fabergé pieces. The same basic color was modulated—plum red from dark to light—which differentiated the surfaces of the squares with intriguing vibrant effects of light.

The wall piece by Pamela Harlow of Seattle, Washington, "Triangles Nos. 1, 2 and 3," won the "Best in Show" award. These three variations on the same design—delicate, of almost watercolor quality—were a flowing poetic statement faultlessly and exquisitely executed in subdued gray, white and light blue tonalities of enamel over a flat white background.

The large plaque by Sherry Schrut of Los Angeles, more gutsy and experimental, an enamel collage playing on a rhythm of horizontals and verticals, won the prize for "Best Choice of Materials and Sensitive Development."

The prize for "Best Imaginative concept in 3-D Objects" was awarded to Carol Rieth of Glendale, California. Her pieces introduced the viewer to a world of fantasy, mirages of castles projected high in the clouds. The enameled design of "Shell Castle" was mounted over the back of an enormous opalescent shell—an illusory kaleidoscope with the fragmented vision of the castle at its bottom. The color harmony of nacre (shell) and pastel (enamel) enhanced the dreamlike quality of the piece. Perfect synthesis of form, surface treatment and design were also present in Rieth's other piece "Keeper." It could have been an allegorical monstrous bird, but fun, not ominous, a Hieronymous Bosch bird, high on an elongated, twisted metal stilt. The enamel was pink, dark and light blue, very subdued in color, in contrast with the powerful metal volume over which it was mounted. The surface treatment of the metal went from highly polished to oxidized, from smooth to rough. The birdlike form perched on the top seemed ready to take off, propelled by a series of science-fiction metal rods inside the central hollow part of the piece. There was definitely here, as Michael Croft said in the introductory statement to the show, "a merging of surface and form into a cohesive forceful statement."

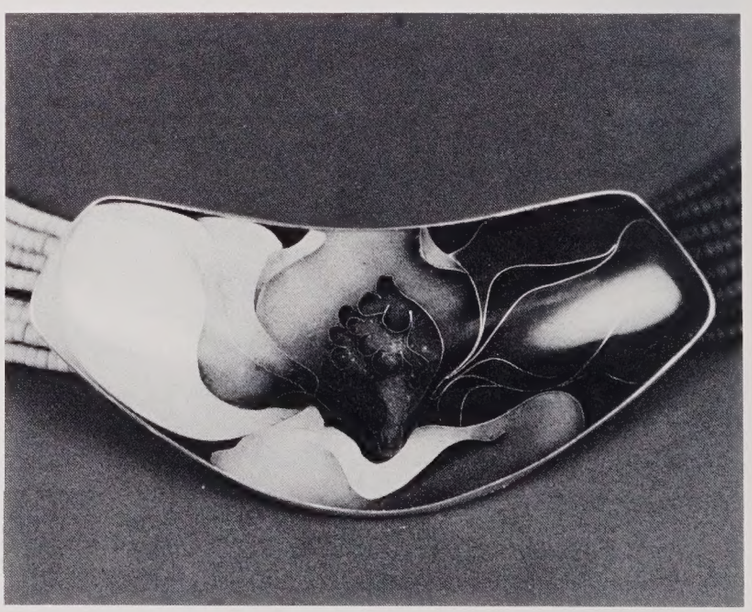
**Southeastern Contemporary Metalsmiths**
LeMoyne Art Foundation,
Tallahassee, Florida
March 30–May 13, 1981
by Betty Rogers Rubenstein

This traveling show was very uneven, ranging from the elegance of William Harper's jewelry to clumsy and overdesigned artifacts. For this viewer, the net effect seemed to be that technical skill was far in advance of conceptual clarity.

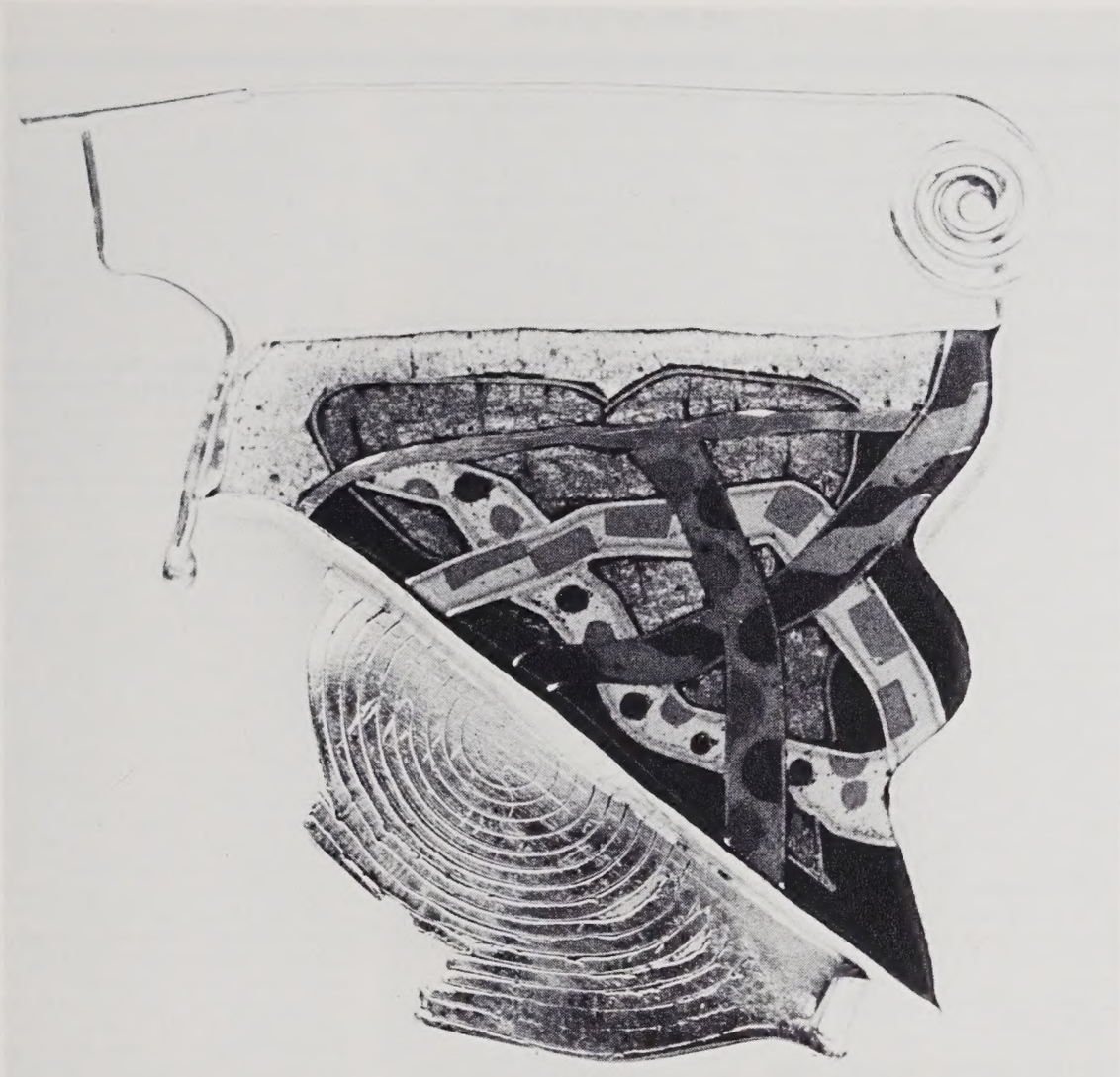
With respect to the jewelry in this show, the problem centers on the question of how to adorn a woman of the 1980s when her own image of femininity is not clear either to herself or to others. If the idea of femininity is incoherent, we cannot expect to have designs in jewelry which will flow with her body or with the being of the female spirit.

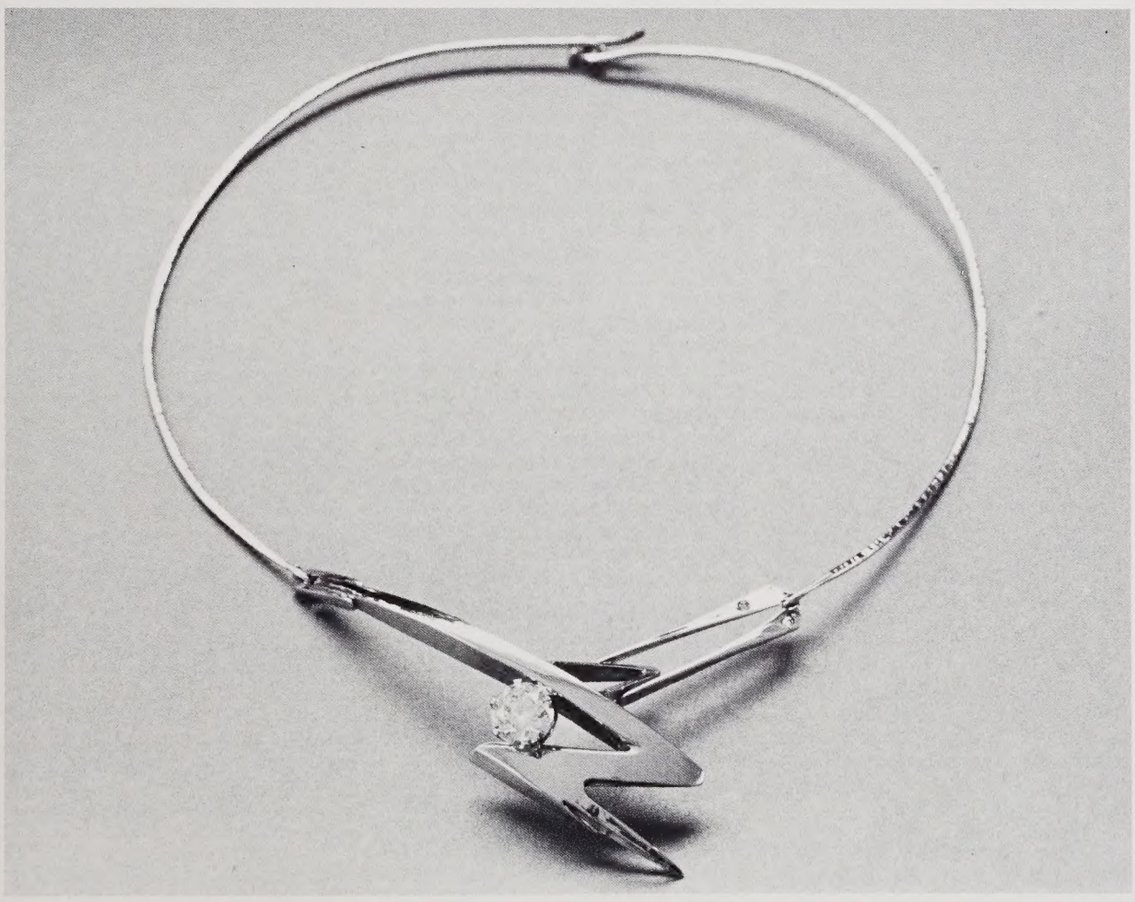
For example, the philosophy behind the design of Sarah Capp's "Luna Neckpiece III" with its Art Nouveau wings and drawn-out curves might have been acceptable in turn-of-the-century Vienna, but in the 1980s there was something inauthentic about this use of style.

On the other hand, William Harper's individual and original style has developed out of his personal recognition that a woman is still a creature of secrets, a sensual and sexy being for



**Top:** Carol Rieth, *The Keeper,* silver, enamel, 13" high. Photo: Glen B. Ward Co. **Above:** Kathryn Gough, *Inner Flower,* silver, cloisonné enamel, porcelain beads





whom light and color, sound and illusiveness are part and parcel of her being. For Harper, each stone, each shape becomes the exterior manifestation of an inner force. A pearl from the sea becomes again, in Harper's settings, a sign of light born out of the darkness. Common objects are transformed into shapes with meaning. Furthermore, Harper has caught the ambivalence of the female greeting ceremony which both beckons and yet warns away. Small gold loops made a micro sound, adding an extra level of pleasure. In his pin "Unrequited Valentine #3. Bound Heart" (gold, silver, cloisonné enamel on copper, 14k gold, sterling silver), the pressed gold rings, which faded away at the edges, fulfilled the iconography of the piece.

Anne Taussig's necklace "Lightening Bolt" (14k yellow gold, diamonds, cubic zirconium) was striking, rhythmic and graceful, a good example of the harmony of conception and presentation. There was nothing extraneous to her purpose.

The same unity of concept lay behind Peggy Simmon's cleverly thought out "Coin Bank" (sterling silver, 14k gold, enamel). This little prison and temple for wealth provided a bit of humor and food for thought as well as a variety of pleasures for the eye.

Several of the more modest entries were successful, such as Glen Dardner's "Belt Buckle" (Damascus steel, forged, carved, inlaid; 14k gold, silver, copper inlay) and his "Goose Knife" (carved sterling handle; Damascus steel blade). The integrity of these designs came, again, from a successful marriage of function and design with imagination.

This viewer had difficulties with several of the copper artifacts displayed. There seemed to be no rationale whatsoever for Jan Lloyd's collection plates. Inexplicably, one of these carried the image of the front of an automobile. Another plate would be very awkward to use and for some reason was called "Cancellation" (copper, silver, steel and sheffield).

Also confusing was the set of cordial glasses by Christopher Hentz, pretentiously titled "Gusto à la Beaucoupe" (six cordial goblets; bronze, copper, special plastic lining). Presumably the point of these goblets was to hold, in an esthetically pleasing manner, a small amount of precious liquid so that it could be savoured for its taste, perfume and color. These containers masked the color and the size of the portion in a way that was contradictory. In general the copper work in the show lagged far behind the silver work in presentation.

This exhibition is circulated by the Southern Arts Federation and funded in part by the National Endowment for the Arts and the state arts agencies of Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia. In the fall it will continue to travel to the Appalachian Center for Crafts, Cookville, TN and to East Carolina University, Grey Gallery, Greenville, NC. For more information and an illustrated catalog of the exhibition, contact The Mint Museum of Art, 501 Hempstead Place, P.O. Box 6011, Charlotte, NC 28207.

**Top:** William Harper, *Unrequited Valentine #3. Bound Heart,* gold, silver, cloisonné enamel on copper, 14k gold, sterling silver **Above:** Anne Taussig, *Neckpiece: Lightning Bolt,* 14k yellow gold, diamonds, topaz, 5x6x½", 1979

## Questions & Answers

by Linda Weiss

*This is the first installment of a question-and-answer series on health for metalsmiths. Linda Weiss, an independent metalsmith who also teaches in her own studio, has continued to research the vital area of health hazards since her work on her M.F.A. thesis for Cranbrook Academy of Art (part of this thesis was presented at the 1978 Society of North American Goldsmiths conference).*

*Linda will answer questions submitted by readers in this column. Address them to her at: P.O. Box 1032, Sausalito, CA 94966.*

*When mixing up investment, should you take any precautions about breathing the investment dust? Is it harmful to stir the investment with your hand, or should you use rubber gloves?*

To answer this question I contacted Kerr-Sybron Corporation in Romulus, Michigan. This company manufactures both dental and jewelry investments. Rose Burke, the Supervisor with whom I spoke, advised me that upon request, Kerr-Sybron will send a *Materials Safety Data Sheet.*

To illustrate the answer I will use Satin Cast 20 Investment as an example. The formula for this investment is: Silica 70%, Calcium Sulfate 28%, Additives 2%. The additives are various substances which are intended to prolong the shelf life of the investment. Silica is present in large quantities in this formula.

Silica is an insoluble substance, one that will not dissolve in the blood. It tends to remain in the lungs a long period of time. Breathing silica will not usually cause a serious immediate local reaction. Rather, it will be more of a problem with excessive and prolonged exposure. The disease caused by silica is called silicosis. The smaller the particle size, the greater the lung scarring. Rapid-developing silicosis can show symptoms as early as eight months after exposure. Chronic or acute silicosis may take many years of continued exposure. In the Kerr-Sybron laboratories, the people who work in "Refractory" wear OSHA approved particulate masks in addition to working with proper ventilation. These employees are tested for lung disorders every six months.

Since the average metalsmith mixes investment on a limited basis compared to industry, an OSHA approved particulate mask would be an appropriate precaution. These masks can be cumbersome if worn for lengthy periods, but investing is a fairly quick procedure so the discomfort should be minimal. Wearing rubber gloves is not necessary (the people at Kerr laughingly asked, "Why would anyone want to mix this by hand?"). Investment will dry out your skin but otherwise is not harmful to it.

*While coloring titanium, I noticed that the electrolyte ammonium sulfate 10–15% was vaporized by the electricity, thus producing fumes. Are they harmful to breathe?*

The following reply is from Edward DeLarge: "During anodic oxidation of titanium there is a small amount of heat generated at the anode and cathode due to electrical resistance. Therefore a little water is given off. Also oxygen is generated and rises to the surface. It is possible that small amounts of some other gases are given off, but they are certainly not poisonous. However, they do make me sneeze and consequently I try to avoid breathing the fumes."

In essence, do avoid breathing the fumes. The electrolyte mentioned is a very dilute solution. However the TLV (Threshold Limiting Value, which is the legal limit of exposure to toxic chemicals in the work environment) for ammonia substances is only 15–35 milligrams per cubic meter of air. Ammonia substances are known to burn the air tubes, lungs and mucous membranes. The damage will vary depending on the length of exposure, strength of the chemical and individual sensitivity. Most of this type of damage is permanent and irreversible. According to my resources the effects of long-term exposure to ammonia substances in low doses has not been studied.

*Are zinc fumes from melting brass toxic?*

Melting brass can produce zinc vapors that can cause "metal fume fever" or "zinc chills." Symptoms are nausea, headache, fatigue, muscle aches, vomiting. Zinc is considered a "heavy metal" and you can be tested to see if there is too much of it in your system. Metal fume fever may only last a few hours or several days. Frequently, the exposed worker will develop a temporary, one- or two-day, immunity to the fumes. Unfortunately, by the time the worker no longer feels ill, the immunity is usually gone. Good studio ventilation is recommended when melting brass.



**The Thames & Hudson Manuals** —a series of textbooks written by designer-teachers in Great Britain. Three of the series, *Silversmithing, Metalworking* and *Direct Metal Sculpture* are reviewed here. These books are handsomely composed in a small, easily handled paperback format, and priced at $9.95 each. A major drawback is that the British terminology in these books differs considerably from our own, and although this is interesting for someone with a good grasp of metalworking terms, it could be confusing to the beginning student. Trent Sand on Bobs, for instance, or Pink Porthos and Triblets!

*Silversmithing,* by Frances Loyen, 1980

*Silversmithing* is a carefully written and illustrated manual covering holloware and flatware construction. Of particular use here is the chapter on technical drawing with spout layout. Also useful are charts giving weight per square inch for sheet and per foot for wire, conveniently written in factors so they can be adapted to any metal by using the individual metal's specific gravity as the multiplier. More illustrations showing a step-by-step progression would have made the section on raising more understandable to the beginning student. Apart from handwork, the book explains casting and spinning. Unfortunately, superficial safety tips do not make up for the lack of warnings about dangers of using suggested asbestos and lead.

*Metalworking,* by Peter Scott, 1978

Despite the forging pictured on the cover, Peter Scott's book on metalworking contains only a superficial view of forging, with its main thrust towards machining. The lathe, vertical and horizontal milling machines, shaper and band saws are introduced and their functions and uses briefly described. Scott uses student projects to illustrate machining techniques by showing their step-by-step construction. This book would serve well as an introduction to machining processes but should not be relied on as a detailed basic shop manual. It is presumed here that the student already has a working knowledge of the parts of the machines and their functions. Conspiciously absent are examples of work by other artists who utilize these techniques.

*Direct Metal Sculpture,* by Trevor Faulkner, 1978

*Direct Metal Sculpture* is a survey of the different professions, historical and contemporary, involved with the direct working of metal. These include the watchmaker, armourer, jeweler and knifemaker, as well as the sculptor. Direct working processes (excluding indirect methods such as casting), such as three-dimensional shaping, welding, cutting processes and surface embellishing are outlined only briefly. Faceted stone setting, for example, is mentioned with a single diagram and the text "The Claw Method is capable of accommodating faceted or irregular shapes without the need for unduly critical tolerances." The value of this book seems to be in the pointing out of possibilities and variety in metalworking rather than any specific information on techniques. —Linda Threadgill

**The Artist-Gallery Partnership: A Practical Guide to Consignment,** by Susan Mellon and Tad Crawford, paperback, $4.50, plus $.75 handling charge, available from: American Council for the Arts, 570 Seventh Ave., New York, NY 10018.

Many artists and galleries often assume when they begin a consignment relationship that the business details are a personal matter between the two parties. However, *The Artist-Gallery Partnership: A Practical Guide to Consignment* clearly points out that this is not the case. In all states but Louisiana this relationship is governed by the Uniform Commercial Code (U.C.C.), a comprehensive statute that covers legal aspects of a wide range of situations that may arise in commerce. Several states have additional laws, such as a requirement that there be a written contract between artist and gallery. Some states go even further in requiring that specific elements be included in this contract. The authors explain in detail the provision in the U.C.C. which permits creditors of a gallery to seize goods on consignment in order to satisfy their claims. This can be devastating to an exhibitor, but ways are suggested to prevent this from happening. Several states already have laws that override this portion of the U.C.C. and it would seem that an organization such as SNAG, through intensive lobbying efforts, could get this legislation passed in all states. For its discussion of legal matters alone, this short book is well worth reading.

The main body of this book presents a sample contract drawn up by the authors, and a detailed explanation of each clause. For a copy of this contract and further discussion of it, see *Metalsmith,* winter 1981, pages 52–53.

This book, written in a clear, understandable manner, is of great value to both the artist and gallery owner as a guide for dealing with business and legal complexities. A careful reading of this book before entering into a consignment relationship should help minimize any future problems.

—Deborah Norton

**Cloisonné: The Art of Cloisonné Enameling and Jewelry Making** by Felicia Liban and Louise Mitchell, Chilton, $18.95, cloth, 246 pages

This work personifies the old adage, "A little bit of information is dangerous." It takes an incredibly limited viewpoint of one aspect of

enamel and drags it out to fill almost 250 pages. It represents the kind of attitude in contemporary craft books which presumes an almost complete lack of talent, taste, motivation and intelligence on the part of the reader. I kept trying to ascertain to whom this book might be directed, and have finally decided that it is for the Sunday hobbyist who can't draw but who supposes the being involved in the "arts" is "relevant," "fulfilling" and that "everyone has some amount of talent."

Bullfeathers! This expensive, lowest-common-denominator, how-to-do-it craft book is nothing more than an expensive big brother to Walter T. Foster's endless tomes of follow-the-leader. Actually, the two authors have published their own slightly changed version of the Kulicke-Stark limited approach to enamel, i.e., spoon-feed the student an incredibly structured, highly detailed amount of information over the longest span of time in such a way as to completely stifle any approach but the instructor's. The only things missing are the ubiquitous cloisonné pear, and creativity!

Considering that "cloisonne" is essentially a drawing technique, it is ironic that virtually no attention is paid to this. The illustrations (almost all by the authors) represent totally inept draftsmanship and are so naive that little could be expected in the way of esthetic enlightment, not to mention technical considerations of spatial illusion, figure-ground relationships, or even the vitality of line. The 42 pages of detailed step-by-step projects are the gravest insult to intelligence I have ever seen in any book.

The latter sections of the book deal with setting enamels (plus chain making, a limited approach to granulation and other basic metal techniques) and, again, these are highly directed but at least this information is classic and not readily found in any one place elsewhere. Again, an irony —the best part of a book on enamels is not about enamel.

I have always felt that the best education is one which teaches the student to learn how to learn. This book misses this attitude completely. With instructional material of this caliber, the crafts become their own worst enemy.

—William Harper

**Designing Jewelry,** by James Warwick, Charles Scribner's Sons, New York, 1980, $7.95, paperback

This book is an introductory guide for beginning students. Most of the material is elementary for anyone previously exposed to jewelry design. Chapters on structural and physical properties of jewelry, visual elements in design and sources for ideas are basic to those with experience or training. Warwick's expressed contention that jewelry design can be taught is not borne out in the text which, while offering instructional information, does not adequately address the roles of talent and imagination in the creative process.

The 96-page guide is illustrated by sketches and photographs of work by the author, a member of the art education faculty at Queens College. It also includes photographs of everyday objects —clothespins, paperclips, wrenches and safety-pins— offered to show a beginner how to consider design sources and 12 pages of examples of jewelry pieces which Warwick feels are representative of jewelry concepts and techniques. The selected examples, by the author and others, are for the most part uninspired and dated.

—Victoria Howe

**Pricing and Promotion: A Guide for Craftspeople,** by E. Patrick McGuire and Lois Moran, New York: American Craft Council, pb, $7.50 ($5.20 to ACC members), 1979

Several books offer advice to craftsmen, from the hobbyist to the full-time professional, on selling their work. Increased sophistication in marketing by both craft creators and retailers has been evident in recent years. Crafts sold from orange crates have all but disappeared from professional craft fairs. Despite newly changing attitudes towards marketing crafts, few books offer practical information on implementing these attitudes. Therefore, *Pricing and Promotion* is a necessary, helpful and welcome work.

Unlike some other craft business books, the work omits chatty anecdotes and "folksy" advice. Instead, one finds a wealth of information related to the two major areas of marketing named in the title. The spare, serious approach of this book might have little appeal to the hobbyist.

While offering guidance to those creating mostly commissioned or one-of-a-kind pieces, the book is more valuable to the production craftsman. The authors clarify the bases of realistic pricing to aid manufacturers who might limit salability by overpricing or risk insolvency by underpricing. A variety of pricing methods is offered; direct costs, indirect costs and overhead are explained.

The second section of the book deals solely with promotion. Too often, craftsmen devote so much energy to design and manufacture that they give little, if any, thought to publicity. Frequently, craft fairs are regarded as the sole method of promotion. Moran and McGuire describe promotion techniques that most craftsmen could afford and achieve.

What separates this book from others of its kind is its specificity. It deals entirely with two crucial areas of crafts marketing. Though helpful to the craftsman just beginning a business, it is essential to those who already have a business but need assistance with marketing to make that business survive and flourish.

—*M.B. Rose*

**The Practical Handbook of Blacksmithing and Metalworking,** by Percy W. Blandford. Blue Ridge Summit, PA: TAB Books, pb, 1980

This is a new entry into the rapidly crowding field of books dealing with blacksmithy and general metalworking. It is not, however, a particularly distinguished addition to the literature.

Mr. Blandford has produced a dozen other books bearing such titles as *Woodworking with Scraps* and *Practical Knots and Ropework*. His traditional audience seems to be hobbyists and occasional workers who just want to build a sailboat or repair their home. Blacksmithy does not really lend itself very well to the once-in-a-while hobbyist. The setup costs are usually high and the danger of injury fairly great in the early stages of learning. The person who decides to go into this field needs and deserves clear and precise information. I find myself wondering who Mr. Blandford is writing for. For beginners or intermediate workers he is not even close to the high standards set by Jack Andrews in *The Edge of The Anvil* and certainly no advanced worker could possibly take this book seriously.

A catalog of the errors of fact, of illustration and of proofreading would be nearly as long as the book itself (436 pages), for there is hardly a page on which one or more does not occur. A few examples will have to do. Errors of fact can, of course, take different forms. Sometimes Blandford seems to be merely misinformed, as in the case of his discussion of forges. Here he gives the reader the impression that most forges today put the blast into the fire from the side. He mentions a bottom blast arrangement but discusses it only as a homemade expedient. Beginners who use this book as a major source are going to waste a lot of time looking for a side blast forge and a lot more time trying to learn to use it if they do manage to find one. Some of Blandford's errors are more serious sins of ommission. In dealing with hardening and tempering (pages 90–91) he makes no mention of the importance of *position* in taking the tool into the quenching liquid, nor does he suggest a covered container for oil quenching. Those two omissions alone contain literally dozens of possibilities for injury, either to the budding smith or to anyone who tries to use his warped or otherwise damaged tool.

As to errors of illustration, perhaps the most irritating to this reviewer came on page 235. There, a poorly reproduced photograph of what may have been a very nice 18th-century door latch was run *on its side*, the handle and thumb-latch running across the page! To a person who had never seen such an artifact, that photograph could only be a source of confusion. This is the worst, but by no means the only case. Virtually all the photographs are so poorly reproduced that they lose much of their ability to convey visual information.

For errors of proofreading, turn to any random page. They are almost impossible to miss and in some cases they so distort the sentence as to make its intended meaning completely obscure. Finally, in this reviewer's opinion, there are errors of esthetic judgement. The worst of these occur when Blandford lays down "artistic rules." Consider his dicta on pages 132 and 134 for example. "Curved lines are generally more acceptable than straight ones." Or a bit later, "Circles are not as pleasing as ellipses or ovals." Acceptable to whom? Pleasing to whom? This sort of thing scares me. If anyone paid any attention to this it would close off possibilities when the proper role of a book is to open up possibilities.

You want to learn about blacksmithy? Go get Jack Andrews' book. Give Percy Blandford's attempt to cash in on the new interest in hot iron a pass.

—*F. Jack Hurley*

## BOOKS RECEIVED

*White Metal Universe: Navajo Silver from the Fred Harvey Collection*, The Heard Museum (University of Washington Press, pb)

*Step-by-Step Knifemaking* by David Boye (Rodale, $10.95)

*Gemstone & Mineral Data Book* by John Sinkankas (Van Nostrand Reinhold, pb, $6.95)

*Adventures in Wood Fininshing* by George Frank (The Taunton Press, $9.95)

*Modern Pewter, Design and Techniques* by Shirley Charron; *Jewelry Making by the Lost Wax Process*, rev. ed., by Greta Pack; *Jewelry Making for the Beginning Craftsman* by Greta Pack (Van Nostrand Reinhold, all pb, $7.95, $4.95, $6.95 respectively)

*Fabergé: Court Jeweler to the Tsars* by G. von Habsburg-Lothringen and A. von Solodkoff (Rizzoli, $35.00)

*Gold: An Illustrated History* by Vincent Buranelli (Hammond, $30.00)

*Metalsmith Papers of the Society of North American Goldsmiths* (SNAG, pb, $12.00)

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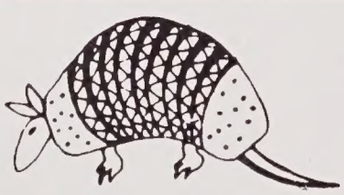

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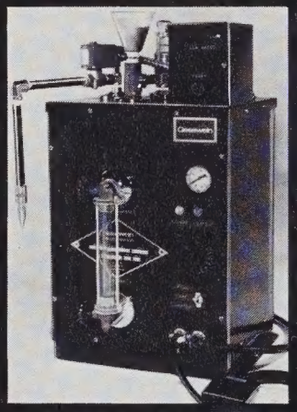

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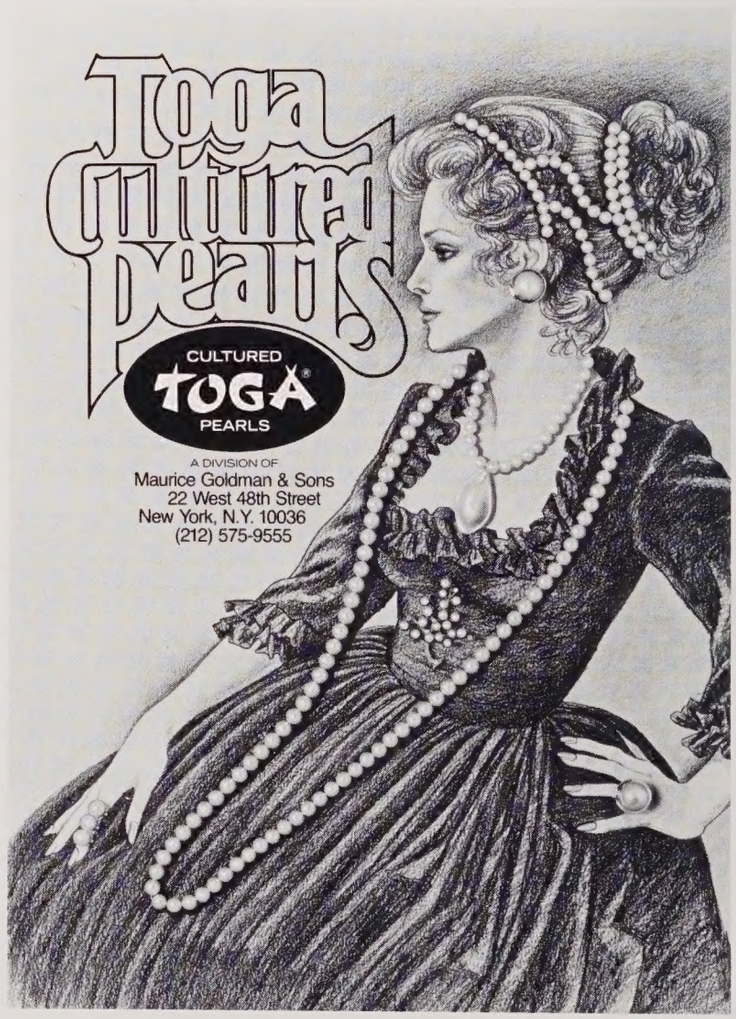

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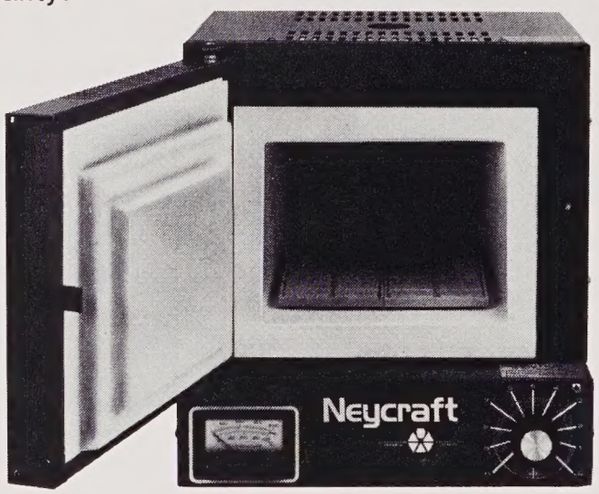


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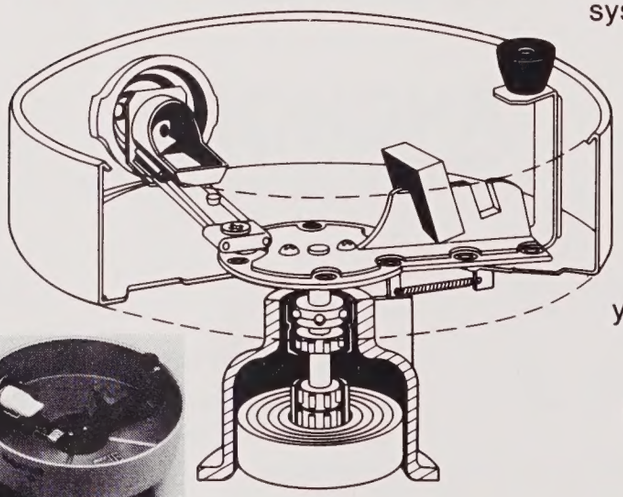

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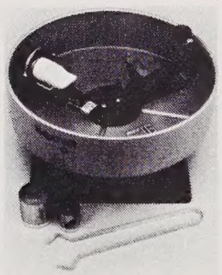

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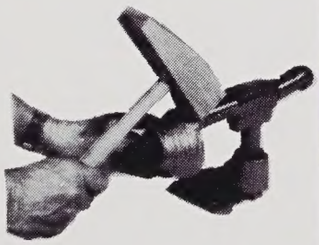

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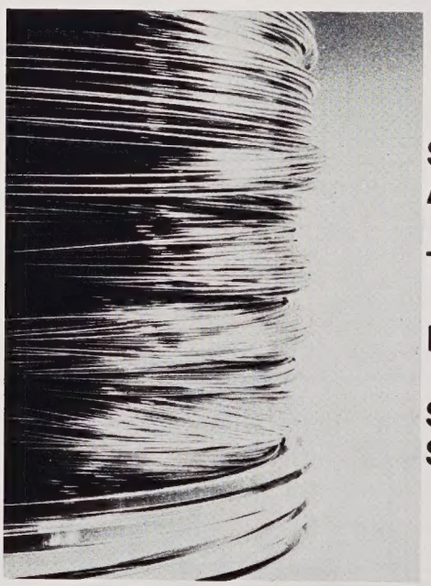

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